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THE
CANADIAN HORTICULTURIST

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VOLUME XXV

EDITOR, . . . LINUS WOOLVERTON, M. A.

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OF THE

CANADIAN HORTICULTURIST

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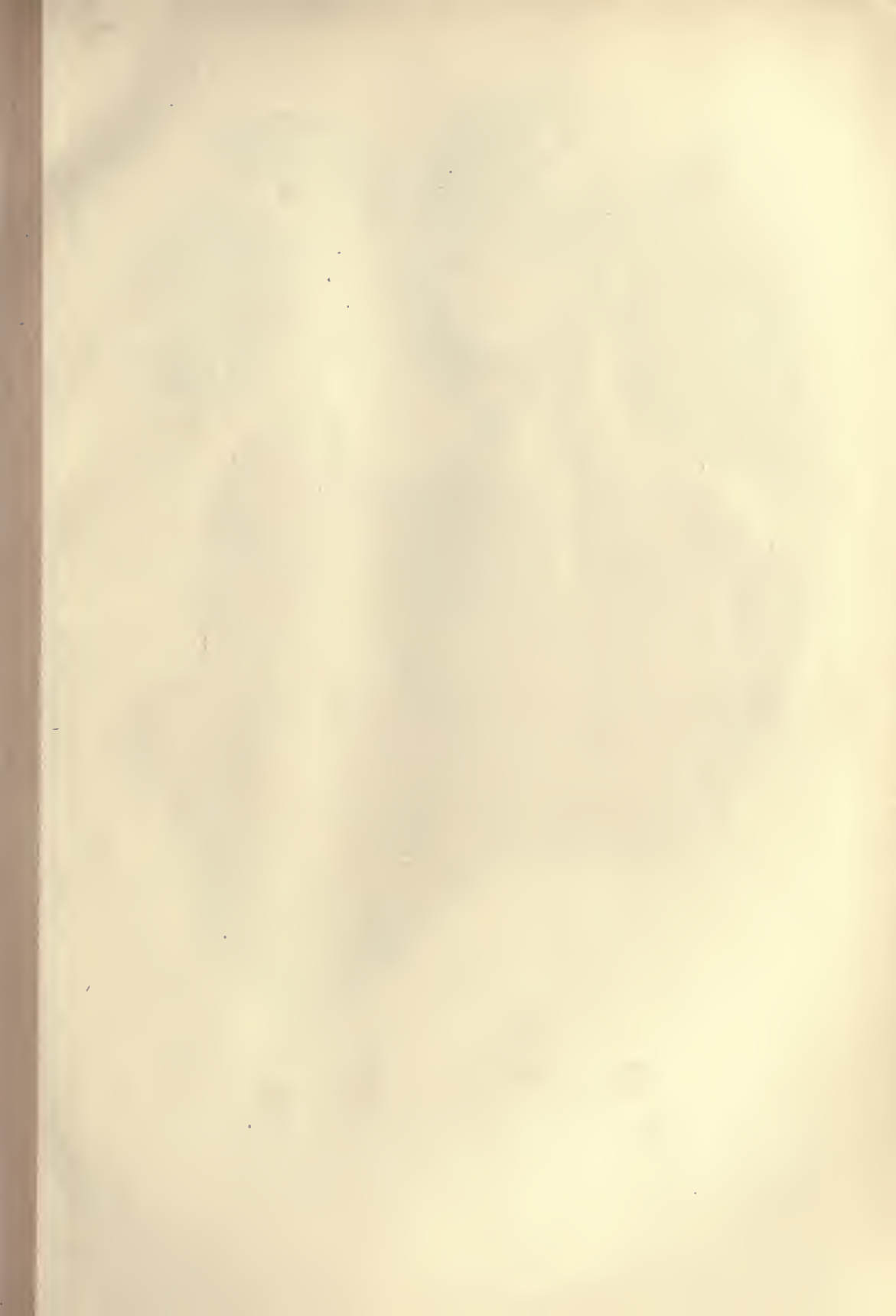
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YREDEBURG & CO.
Rochester, N.Y.

WINDSOR.

THE CANADIAN HORTICULTURIST

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* * JANUARY * *

THE WINDSOR CHERRY.

THIS cherry has been so much talked about during the past ten years that our readers will be pleased to see a colored plate of it as a frontispiece to this number.

In Ontario the later cherries have proved rather more profitable than the early ones because of American competition. For this reason we are inclined to plant English Morello instead of Montmorency, and Elkhorn and Windsor instead of Governor Wood and Black Tartarian.

Our colored plate shows prodigious fruitfulness; but only in exceptional cases have we found the Windsor to bunch in this way. More often the fruit hangs in twos and threes, and gives only a moderate yield. The worst fault with the Bigarreau cherries is their susceptibility to the Rot, and we have found the Elkhorn very troublesome in wet seasons. This same fault seems to be common with the Windsor, but probably can be controlled with Bordeaux spray. Indeed Mr. W. M. Orr, of Fruitland, stated

at Cobourg that he had succeeded in harvesting an excellent crop of cherries of various sorts, including the Windsor, during this past season when cherries in orchards not sprayed were perfectly worthless. From his evidence it would seem that spraying the cherry is most signal in its results in controlling monilia.

This cherry originated in the grounds of the late James Dougall, Windsor, has been well tested in New York State, and has the reputation of being hardier than most other varieties.

We have grown it at Maplehurst for some years, and have planted out about two acres of the variety, but have not as yet sufficient notes to make a permanent description of it. We quote the following note from the report of the Michigan Experimental Station, which accords with our experience thus far: "Free, vigorous, and a good cropper; fruit large heart-shaped; color dark red; quality very good. A very valuable market cherry."

A STEP FORWARD.

AN important change takes place from the 1st of January, 1902, in the management of the Ontario Fruit Growers' Association. Mr. L. Woolverton, of Grimsby, Ont., who has held the combined office of Editor of this Journal and Secretary-Treasurer of the Association for fifteen years, finds the work growing upon his hands until the responsibility is too heavy for one person to carry. In order, therefore, that he might give more attention to the journal and make it more useful to the fruit growers of every part of the Province, Mr. Woolverton asked for a division of his work, and that he be relieved of the Secretary's duties. At the Cobourg meeting this request was granted and Mr. G. C. Creelman was appointed to this work for the year 1902.

With this change we anticipate a great advance in our work all along the lines. No doubt arrangements will be made by Mr. Creelman whereby local fruit growers' institutes will be held in every part of our province, and all sections will work harmoniously for the general good; while the editor hopes to be able to come into closer touch with the fruit growers of the various districts both by visits to their fruit farms and by attending many of their local meetings.

THE NEW SECRETARY.

Mr. George Christie Creelman, who was at the last annual meeting of the Ontario Fruit Growers' Association elected to the position of secretary-treasurer of that organization, is a native of this province, born in the town of Collingwood and reared on a



FIG. 2203. MR. G. C. CREELMAN.

fruit farm on the side of the Collingwood mountain. In 1888 Mr. Creelman graduated from the Agricultural College, Guelph, taking the degree of B. S. A. from the Toronto University. Immediately on graduating Mr. Creelman accepted a position on the staff of the Agricultural and Mechanical College of Mississippi, where he remained as Professor of Biology for nearly ten years. For the last three years Mr. Creelman has been Superintendent of Farmers' Institutes for the Province of Ontario, and last year, at the request of the Executive Committee of the Fruit Growers' Association he took charge of the lecture work in connection with the horticultural societies.

NOTES FROM THE BIOLOGICAL DEPARTMENT, ONTARIO AGRICULTURAL COLLEGE.

1. *More about the Home of the San José Scale.*

IT is interesting to note the efforts which have been made, and are being made to determine the original home of the San José Scale. Ever since its dread presence in the eastern portion of this continent was detected in 1893, entomologists and practical fruit-growers have been anxious to secure a natural remedy—one which would keep the Scale in check, as the imported lady-bird from Australia now keeps the Cottony-Cushion Scale in subjection in California. Any doubt as to the realization of such a wish should not prevent a search for the native home of the Scale, for it would appear that there the pest is kept under control by some agency. To determine this controlling factor and to introduce the factor into this country is thus the object of the laudable efforts to locate the home of the San José Scale.

For many years after the California orchards were first attacked, it was supposed that the Scale had been introduced from Chili, for it was discovered in that country in 1872; but later investigations in Chili showed pretty conclusively that the Scale was not a native, but an introduced insect. So this theory was in time abandoned.

Next, Prof. J. B. Smith suggested, in 1896, that the native home of the San José Scale was probably in one of the Northern Pacific States. This theory was, however, never very seriously entertained by many of our best entomologists, and was also soon abandoned.

Japan was next pronounced the home of the Scale, and many evidences seemed to point to its introduction from that country :

1. The agents of the quarantine station in California found Scale on nursery stock imported directly from Japan ; 2. Mr. Kuwana, a Japanese student at Stanford University, California, found the Scale so widely spread throughout the Japanese Empire that he came to the conclusion that his native land was also the native land of the San José Scale. He announced, moreover, that the Scale was there kept in check by certain parasites and lady-birds.

Following immediately in Mr. Kuwana's important announcement, Dr. Howard, chief Entomologist at Washington, sent Mr. Marlatt early last summer to Japan to investigate the conditions there, and if possible, to bring back to America some of the parasites and predaceous insects which were instrumental in keeping the Scale in check.

At a recent meeting of the Biological Society at Washington, Dr. Howard stated that he had just received a letter from Mr. Marlatt announcing that the original home of the San José Scale was not in Japan, but in that region of China immediately south of the Great Wall, and that a consignment of living lady-bird beetles which were found preying on the Scale in China, was on its way to America.

I am sure it is the ardent wish of every fruit-grower that these lady-bird beetles may arrive in a healthy condition, and begin work immediately on Scale-infested orchards.

2. *The Haseltine Moth-Catcher.*

This moth-catcher has been widely advertised as a codling-moth destroyer. To test the merits of the moth-catcher, I had two of them placed in the College garden among apple trees. They were kept burning every night, with but a few exceptions, from June

7th to Sept. 7th. The insects captured were taken out and identified every morning.

Following is the result of the captures :

Decidedly beneficial insects	{	Inchneumon Flies	were	70 %	of all taken.
		Lady-birds	"	2 $\frac{1}{2}$	" " " "
		Ground beetles	"	1 $\frac{1}{2}$	" " " "
Dung beetles		"	"	6	" " " "
Mosquitoes		"	"	5	" " " "
Fire flies		"	"	2 $\frac{1}{2}$	" " " "
Crane flies		"	"	1 $\frac{1}{2}$	" " " "
May beetles		"	"	5	" " " "
Squash bug		"	"	2	" " " "
Cucumber beetles		"	"	2 $\frac{3}{4}$	" " " "
CODLING MOTHS		"	"	0	" " " "

The inventor of this trap-lantern moth-catcher boasts that he sold over 40,000 during the past season. If all these were in operation for four months, probably forty

millions of decidedly beneficial insects were captured and destroyed.

I find a great similarity in the results of my experiments with those of other entomologists at agricultural experiment stations in the United States. In every case, without exception, so far as I am aware, no codling moths were taken.

Prof. Webster, State Entomologist of Ohio, advises us Canadians to impose a specific duty of \$5.00 on every Haseltine Moth-Catcher brought into this country, for he considers it not only an imposition, but a source of untold injury to the orchards of the country.

W. LOCHHEAD.

THE KIEFFER SHIPMENT IN COLD STORAGE—I.

MR. WILSON'S REPORT.

DEAR SIR,—In reference to your inquiry regarding my recent trip to the Glasgow Exhibition, and also the experimental car load of fruit to the Scottish Commercial Metropolis, I beg to submit the following particulars.

I reached Montreal October 23rd. The car of pears packed by Mr. Murray Pettit arrived on the 24th in excellent condition, and were very carefully transferred by the agents of the Donaldson S. S. Line into the cold storage compartment of the S. S. Marina. The Government Fruit Inspectors (Mr. W. A. McKinnon and others) after examining these pears, expressed themselves satisfied with the fruit, and were pleased to observe that not a single package of the whole 600 was either bruised or broken. We left Montreal on the afternoon of the 25th, and from the time the cold storage compartment was closed until the arrival of the Marina in Glasgow (November 7th) the temperature of the compartment was taken every four hours, night and day, the highest register being 41 degrees, and the lowest

37 degrees. The pears were unloaded on the morning of November 8th, and on examination were found to be just a little riper than when packed. Very little of the maturing process having taken place during transit. With such a complete cold storage system as this I am certain the most delicate of our Canadian fruits, if carefully and properly packed, can be landed in Britain in "perfect condition" and command the highest price obtainable. Condition is everything, and the day these pears were exhibited for sale their appearance and perfect condition was so striking (not one pear being deteriorated) that buyers offered to take the whole shipment at prices fully 50 per cent. in advance of the figures at which the same variety of pears was selling, wrapped and packed in ordinary boxes or barrels. Messrs. R. & W. Davidson, Glasgow, to whom these pears were consigned, stating the quality, condition and appearance of the fruit was unprecedented in a shipment of this magnitude, and expressed great satisfaction at the size of the packages. Small

handy cases containing 35 to 40 lbs. of fruit are what every dealer wants. Twenty people can afford to buy a small package to the one who can afford to purchase a barrel, and as the majority of the packages are barrels, the one buyer has the advantage over the twenty, and the competition being so much reduced the man who can buy and pay for the barrel practically controls the whole market. As

far as I can see, the shipper who uses small neat attractive packages, and packs only first-class fruit into them, cannot fail to come out ahead. As I do not wish to encroach too much on your valuable space at present, with your permission I will follow up this subject a little further in your next issue. I am, Sir, yours truly,

London, Ont.

WM. WILSON.

SIMPLICITY IN TABLE DECORATIONS.—Elaborate and expensive floral centrepieces are not necessarily the most beautiful. Simplicity often rules the worlds of art and nature. Who would consider as beautiful, at first thought, a few sprays of the leafy growth of the garden asparagus together in a small vase with a like number of golden coreopsis? The effect is charming if the vase also be simple. This should be remembered, that a vase of flowers is intended to display the beauty of the flowers and not man's handiwork in molding or coloring the vase.

The umbels of white flowers of the wild carrot are very pretty in vase decorations, yet how few persons would think of gathering them for that purpose!

While it is a benefaction to man to have at command, for use and proper enjoyment, all the beautiful things possible, it is fool-

ishness to trample aside a host of pleasing things, merely to strive for the elusive and unattainable or imaginary beauties. The writer does not lack praise for rare beauties, but rather deplores the tendency to look over and beyond Nature's abundance in the fields and along waysides.

Did you never pull a flower of the wild carrot? The tenacious fibre of the stem requires a pull. Never smell of its peculiar fragrance—if fragrance it may be termed? Note the odd, concave form of the umbel,—like a good-sized butter-plate.

There is much in Nature for us to learn and appreciate, and in our observations we come to know her better, we learn to love her, and that feeling will embrace our fellow-men. Let us, then, bring her simplest charms to our hearts and homes, without fear of missing something more rare and more beautiful beyond.—*Meehan's Monthly*.

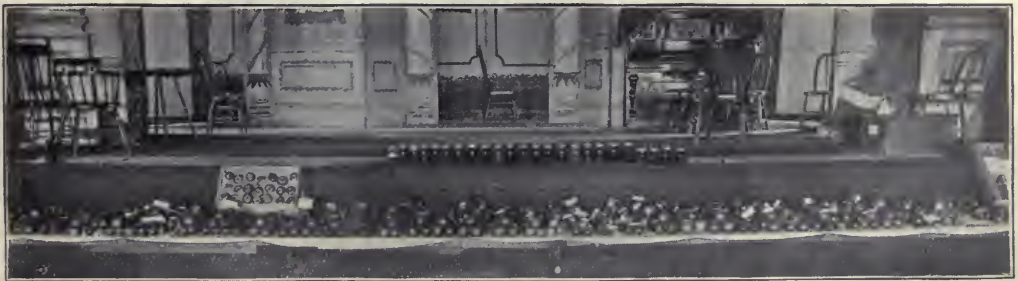


FIG. 2204. THE FRUIT EXHIBIT AT THE COBOURG MEETING, WHICH INCLUDED A COLLECTION OF APPLES GATHERED IN 1900, AND PRESERVED IN COLD STORAGE IN EXCELLENT CONDITION.



FIG. 2205. SHOWING GROUP OF OFFICERS AND MEMBERS OF THE ONTARIO FRUIT GROWERS' ASSOCIATION AT THE ANNUAL CONVENTION, COBBOURGH, DEC. 4, 5 AND 6, 1901.

THE COBOURG MEETING A MAGNIFICENT SUCCESS.



FIG. 2206. MAYOR E. C. S. HUYCKE,
Who gave our Association a hearty welcome to the Town of
Cobourg, and took a deep interest in the meetings.

NEVER in the history of our Association was there so great an attendance or so deep an interest taken in our meetings as at our recent convention at Cobourg.

The day meetings in the Court room were attended by nearly 200 people and the evening meetings in the Opera House were crowded to the doors.

The morning meetings were devoted to business, the afternoon to educational topics on the growing and marketing of fruit, and the evening sessions were of a popular character.

HONORARY DIRECTORS.

Under the first head an innovation was introduced by making Mr. Thomas Beall

and Mr. A. M. Smith, honorary directors in view of their long and excellent services rendered to this Association, the former having been instrumental in organizing about sixty affiliated Horticultural Societies and the latter being the only one with us of the Constituent members.

OFFICERS.

The following are the officers for 1902 :—
G. C. Caston, president ; W. H. Bunting, vice-president ; R. B. Whyte, W. A. Whitney, Harold Jones, W. H. Dempsey, Major Snelgrove, Elmer Lick, M. Pettit, E. Morris, J. S. Scarff, W. W. Cox, T. H. Race, Alex. McNeill and C. L. Stephens.

SAN JOSE SCALE.

The San Jose Scale was reported on by Mr. G. E. Fisher, the official inspector. This pest had not appeared in any new localities owing to the vigilance exercised by the Department of Agriculture, but in places where it was already established and neglected the condition of things was most alarming.

Crude petroleum has proved the most effective spray for apples, pears and plums in treating the scale ; it might not entirely



FIG. 2207. RESIDENCE OF MAYOR HUYCKE.



FIG. 2208. J. D. HAYDEN,

President of Cobourg Horticultural Society, who was present and took a prominent part in our meetings.

eradicate it, but it would not spread, and the trees could be kept healthy and in a condition for bearing clean fruit. For the peach tree the whale oil soap was still recommended, because it was easily injured by the petroleum.

As to the cost of material, the latter was much the cheaper. To treat a full grown peach tree for example with soap cost about twelve cents, while to treat the same tree with crude petroleum would only cost about two cents.

Fumigation of orchard trees has been tried, and was a complete success in killing the scale, but it was very difficult of application and rather expensive.

The discussion culminated in the following resolution :

In view of the fact that the San Jose scale act is not being enforced, and that in many fruit grow-

ing sections where the interests are large and very little, if any of the scale exists, it is desirable that the growers have government assistance to protect themselves against this pest.

Therefore, Resolved that the San Jose Scale committee be authorized to urge upon the government the importance of enacting permission to legislate on the lines of the following memo :—

1. It shall be a punishable offence for anyone to neglect to eradicate the San Jose Scale at once when it is located and brought to the attention of the owner,

(a) by burning the infested trees,

(b) by fumigation with hydrocyanic gas,

(c) by spraying with crude petroleum,

(d) or by such other means as may be recommended by the Department or its officers from time to time.

2. That any township must, on the petition of fifteen rate payers, appoint an inspector or inspectors, whose duties shall be to thoroughly inspect all fruit trees subject to San Jose Scale in the township, and see that the scale is eradicated where discovered.

3. That the inspector shall be paid one third by the township, and the balance by the province.

4. That the said inspector is to be liable for neglect of duty.

5. That the Provincial inspector shall supervise the township inspectors, direct them, and see that they are doing their work in the most effective and economical manner, and see that they make thorough inspection and that they secure the carrying out of the law.

6. That the Government supply suitable material for spraying on the same terms as has been done during the past season.

HORTICULTURAL INFORMATION.

How best to educate fruit growers throughout the province in the best methods of horticultural practice was discussed, and a resolution passed asking the Provincial



FIG. 2209. "THE MAPLES," RESIDENCE OF SENATOR KERR.



FIG. 2210. MAJOR H. J. SNELGROVE, Governor of the County Gaol, who was elected one of our Directors for 1902 at the Cobourg meeting.

Minister of Agriculture, to issue a series of practical bulletins on the first principles of fruit growing. Attention was directed to the series of articles entitled "First Lessons in Fruit Growing" by Prof. Hutt of the O. A. C. Guelph, which are now to appear in the Canadian Horticulturist.

If this publication could be more widely distributed among our farmers it would itself constitute an excellent medium for such information.

FREIGHTS ON FRUITS.

The Transportation Committee brought in a report, which, while thanking the companies for the small concessions made to fruit growers, regretted that there was still much reason for complaint, because rates on fruit were so much higher than on other

commodities, thereby crippling the fruit industry and which stated that while requests had been once more presented to the railways for concessions which were considered just and reasonable, they had been again refused. It was recommended that the matter be followed up still further, and in the meantime every effort be made to gain information and strengthen the position of the committee, so that sufficient pressure might be brought to bear to secure relief from unjust discrimination against the fruit trade.

Also requesting the Government to continue the valuable assistance already rendered in connection with the export trade in fruit.

This report was practically laid on the table and superseded by the following ;

That various committees and deputations from this Association and from other bodies of fruit growers have from time to time laid before the Railway authorities the injustice of the freight rates and regulations affecting the transportation of fruit; that the railway authorities have invariably received such deputations with the greatest courtesy and have quite as invariably refused to grant any but the most meager concessions; that your committee see no reason to hope that any rates less than "what the traffic can bear" will be voluntarily conceded by the railways; that the Dominion Parliament is the only authority in the country with the power necessary to compel transportation companies to do justice to the public;



FIG. 2211. "HEATHCOTE."

Property of Mr. W. F. Ladd, of Galveston, Texas; at present occupied by Mrs. (Gen.) Grant, of New York City.



FIG. 2212. SENATOR KERR,

who gave our Association a public address of welcome. The Hon. Wm. Kerr, K. C., is a B. A. graduate of Victoria of 1855, and LL. D. in 1887. He was Mayor of Cobourg in 1867, created Q. C. in 1876, called to the Senate of Canada in 1899.

that your committee therefore recommend that the Government of Canada be memorialized to appoint a Railway Commission without delay to fix reasonable rates for the carrying of goods by freight and express, and to provide for the enforcement of the rates and regulations made by such Commission by the most summary and simple process possible, with heavy penalties for all infringement of such rate and regulations.

A new committee, consisting of Messrs. H. W. Dawson, of Toronto, R. W. Graham, of Belleville, and E. D. Smith, M. P., of Winona, was appointed to push the matter of Railway Legislation.

PRACTICAL SUBJECTS.

Among the educational and practical subjects discussed in the afternoon meetings was the Fruit Marks Act. Prof. Robertson stated that so far the work of the inspectors

had been educative but that, hereafter, persons transgressing the Act would be prosecuted.

Mr. H. N. Hutt of Southend, one of the speakers on fruit topics at Farmers' Institutes gave an excellent address on Pruning, which we give elsewhere in full.

The addresses of Prof. Saunders on the work of the Dominion Experimental Farms in producing hardy fruits, and Prof. Macoun on the American and Nigra plums are of much value, and will appear in full in our report, which will be published earlier than usual.

POPULAR SESSIONS.

At the evening meeting on Wednesday addresses of welcome were delivered on behalf of the town of Cobourg and the united Counties of Northumberland and Durham by His Worship, Mayor Huycke, Senator Kerr, Mr. McColl, M. P., of Cobourg, and that most active and enthusiastic fruit-grower and shipper, Warden Rickard, of Newcastle; all these gentlemen united in giving the Association a most cordial welcome to this beautiful town. Mr. T. H. Race, of Mitchell, responded in a most happy manner. These gentlemen were followed by Prof. H. E. Van Deman, of Washington, D. C., and Prof. J. W. Robertson, of Ottawa, who held the attention of the large audience until a late hour.

On Thursday evening Mr. C. C. James, Deputy Minister of Agriculture, gave a valuable address on the possibilities opening out before young Canadians, and emphasized the fruit industry in this respect. He was followed by Mr. G. C. Creelman, Superintendent of Farmers' Institutes, on "Our Horticultural Societies; their relation to the Home, School and Province. Rev. Father Burke gave a very interesting account of the fruit interests of Prince Edward Island.

The list of gold and silver medals won at the Pan-American Exposition was then read

by Mr. Bunting, and the interest manifested by the audience in the local people who had been successful was very marked. Prof. Waugh concluded a very profitable evening

with an illustrated address upon fruit buds and their development. The local band enlivened both evening sessions with some very fine selections."

QUESTION OF CHERRY PLANTING.

IN an article in the Central Farmer, E. F. Stephens, Crete, Neb., says :

"We now believe that commercial orcharding with the cherry will not be nearly as profitable during the coming ten years as it has been during the last twenty. The cherry is so easily grown and fruits at such an early age that it is not difficult to overstock the market, and at this moment we are inclined to wish that one-half of the 3,000 cherry trees in commercial orchards were apple, peach or plum trees.

"During the last five years we think the majority of planters, in many Nebraska districts, have planted almost as many cherry trees as apple trees ; and that when all these trees come into bearing, those who do not have an excellent local market may find it

difficult to sell all the fruit at a profit. We have in mind a cherry orchard in the central portion of the state containing 5,500 trees, and we know of a large number of orchards containing from 500 to 1,000 trees.

"The fruit of the cherry must be marketed in a few days, and will not stand shipment to any great distance. The fruit of the apple, on the other hand, can be kept for long periods, and has more nearly a universal demand.

"As long as cherries like the Early Richmond, Montmorency and English Morello can be sold freely at from \$1.25 to \$1.50 per bushel, there is good profit ; but when they drop to \$1 a bushel or below there are better returns in raising other kinds of fruit.

TOBACCO IS THE BEST INSECTICIDE.—Most of the insects common to house plants dislike tobacco as much as does the cleanly housewife. The best way to use it as an insecticide upon window plants is to secure a good handful of tobacco stems, place them in an old basin, pour boiling water upon them, and let them stand for several hours.

Then drain off the liquid into a basin or tub deep enough for immersing the tops of your plants in, and dilute it with warm water until it shows only a faint tint of brown. Then take up the plants one at a time, and hold them, tops down, in the water, washing them clean.—*Ladies' Home Journal*.



CLOSE OF THE GLASGOW EXHIBITION.

NOW that the Glasgow International Exhibition is a thing of the past, the grounds deserted and the beautiful exhibition buildings littered with packing cases and packing material and all the debris that accompanies a removal, it may be well for us to look back and take stock, as it were, of our own share in it. And I may say at the outset, that visitors to the exhibition, repeated many times over that the Canadian Pavilion was the most attractive part of the exhibition. And, although one may understand that what is said to one's face may partake of the nature of flattery—that although the people of North Britain may not have kissed the *Blarney Stone*, they may nevertheless blow in yer lug a wee, and that a grain of salt ought to be added to praise of your own work, etc. Yet I think we ought to give our friends on this side credit for sincerity even though we had no other reason for taking their word. But it is a fact that many of our staff have heard time and again the praises of the Canadian exhibit from the good natured crowd when it was not known that there was “a chiel among them taking notes,” and who might print them.

As the immense crowds of people passed through our building we could not help overhearing their remarks on the various items of our exhibits and I may say without any hesitation that they were invariably complimentary to Canada and the Canadians, though occasionally we had to listen to a little good natured chaffing.

Some of the agricultural implements were absolutely new to thousands of visitors, many clever farmers amongst the number. From amongst the larger implements there was the Disk harrow, the Spring tooth harrow and the Hay loader. Among the small implements that seemed to catch the

eye was the two-wheeled hand hoes, exhibited by Wm. Ewing & Co., Montreal. These were closely examined and much admired, but many of the farmers said that the soil of Scotland was too coarse to permit of their use there.

But I am sure you will prefer to hear something of our own special exhibit, namely, the fruit. It was not a very large display, nor was any great expense incurred in setting it out. Nevertheless, it was the centre of attraction in the Canadian Pavilion. Whatever one might miss, no one was willing to miss the fruit. The remarks made upon it were, to us who are accustomed to the magnificent displays made in almost any Ontario town, or in the eastern townships, not to speak of Toronto or Montreal, to say the very least, extravagant.

Thousands of people of all classes said it was the finest they had ever seen, and when they found that it was a year old, and had sampled it, and found it almost equal to fresh fruit, perfect in texture and flavor, they marvelled.

Our exhibit of fresh fruit, i.e., fruit in the natural state, was composed almost entirely of apples. The only exceptions were a few plates of pears, unnamed, that came in one of the Nova Scotia cases

As a general rule the apples were not of unusual size, but were very even in size, and most of them of beautiful color. The very large ones were Gloria Mundi, some wonderful specimens of Spys from Lord Aberdeen's orchard, at Vernon, B.C., Fallawaters and Ben Davis from Ontario and Nova Scotia, and I should not fail to mention some glorious Blenheim Oranges also from both Ontario and Nova Scotia. But it is hard to discriminate—almost all our fruit was excellent, and the way it held out to the very last, was a continual wonder. A question

that was asked daily throughout the summer was "How is it that we cannot procure fruit now like what we see here?" or "Where can we buy fruit like this?" It was necessary to explain to the questioners that the present system of cold storage which produced such splendid results, was comparatively new, and that, in a year or two, undoubtedly equally good fruit would be procurable in the summer months.

A frequent complaint from those who did appreciate the value of fruit for daily use was that in buying a barrel of apples for home use a great deal of loss was incurred from the bruised apples, that soon began to decay. Many declared that a quarter or even a half was lost before the barrel could be used, and when shown the forty pound boxes of sound apples, that were sent for our exhibit, they exclaimed that that was just the thing required to perfect the fruit trade. My own conviction is that the barrel is doomed as a marketing package for apples, at least for choice fruit.

The question of a perfect package is a most important one. If growers and packers could only realise the immense loss that is annually incurred by loose apples in barrels—slack, they call them here—they would endeavor to devise some other form of package. I went on several occasions to some of the large establishments for the sale and disposal of fruit, and when based on what I saw there, I say that the loss is *enormous*, I do not, in the least, exaggerate.

Let me here tell you something of the several kinds of cases in which our exhibition fruit was packed, and then you will understand better what the ideal package should be.

There was—first—the case in which the apples were wrapped in a single thickness of tissue paper, and filled up without any other effort to save the fruit from injury, and one lot of the very finest fruit was sent on in that way. It is needless to say that it reached us in bad condition.

The next was a case in which the apples were wrapped in two thicknesses of heavy paper, without any other separation. This fruit arrived in better condition.

Another lot was packed like the last mentioned, with a straw board between the layers of fruit, this lot arrived in fair condition.

A fourth lot came wrapped in double Manilla paper in separate compartments—in egg cases—and arrived in very good condition.

A fifth lot came in egg cases, in separate compartments and also arrived in very fair condition.

A sixth lot came in separate compartments—egg cases—wrapped in double paper, the inner paper waxed. These were in many cases perfect. As were also those in the seventh lot that were doubly wrapped like the sixth, but were packed in Excelsior. Several kinds in this last package were in almost perfect condition.

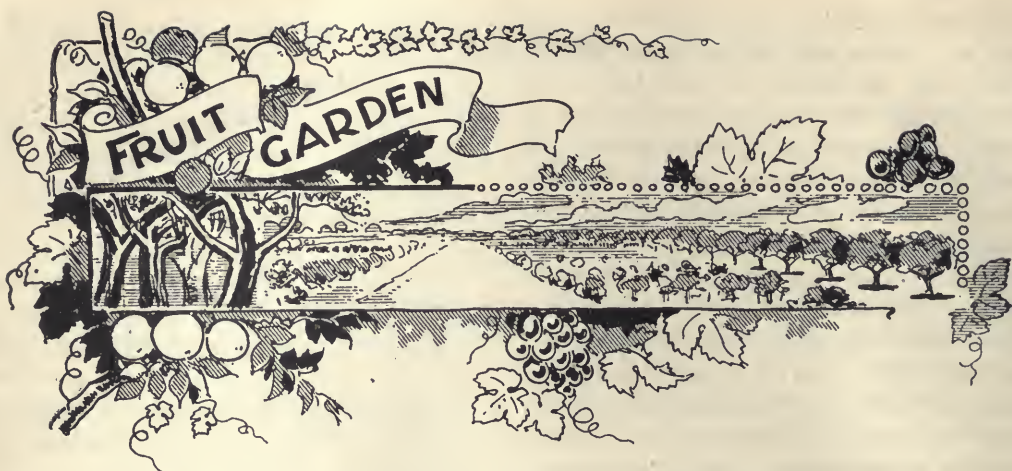
The sixth of these packages, i.e., the separate compartment case, with the apples wrapped in double paper, the outer wrapper, manilla plain, the inner one waxed, seems to approach the ideal package. If such a case could be supplied at a sufficiently low price, it would satisfy a general want and leave little further to be desired. I may say that the seventh seemed to be the favorite shape; it was about 22 inches long by 11 inches wide and deep. The other cases were generally 22 inches square by 10½ inches deep.

A package for plums and pears and peaches might be half the size of that for apples.

I was very much gratified to see the fine prices realised for handsome, well-packed apples just before All Hallowe'en. I saw some sell up to 32s. per barrel. Prices fell considerably immediately after Hallowe'en.

R. HAMILTON.

Glasgow, Nov. 21st, 1901.



FIRST LESSONS IN FRUIT GROWING—II.

THE STEM.

THE stem is that part of the plant which grows upward from the collar, bearing the leaves or branches. In some plants it is so short as not to be apparent, as for example, the strawberry. The length and nature of the stem determines very largely the character of the plant. Woody plants having apparently no stem, but which have the branches springing from the collar, like the currant and lilac, are called bushes or shrubs. Plants having a stem which twines or climbs for support, like the grape, or hop, are called vines. A plant worthy of the name of tree has a well-defined stem which supports the branches. When it is bare of branches for some distance from the ground, it is commonly known as the trunk.

STRUCTURE OF A STEM.

The study of a cross-section of the trunk of any of our forest or fruit trees reveals an interesting structure. In the centre will be seen the pith, next to this the heart wood and sapwood, and on the outside the inner and outer bark. But let us look into these more closely.

THE PITH.—The pith is a soft, spongy substance found in the centre of both stem and branches. In soft wooded species, like the elder or grape, it is comparatively large, while in hard wooded species, such as the apple and pear, it is quite small. In young shoots, it is soft and succulent, holding moisture like a sponge, but in the older parts of the tree it becomes dry and shrivelled, or may rot away altogether. Its use apparently, then, is to act as a reservoir to hold moisture in the young and growing parts of the tree.

THE WOOD.—The wood, which makes up the greater part of the trunk, is of two kinds. That on the inside is **HEART WOOD**. This is the older wood, which has become firm and mature by age. It is generally of a darker color than the sapwood surrounding it. In the walnut, it becomes a very dark, rich color, and constitutes the most valuable part of the tree.

The line of demarkation between the heart wood and sapwood is often quite distinct, but the annual increase in the heart wood comes from the gradual maturing and drying of the inner layers of sapwood.



Fig. 2213 (from Primer of Forestry, by Pinehot.) Cross-section of Black Oak. The silver grain, the rings of annual growth, and the dark heart wood and lighter sapwood are visible, and the line between the rough, corky outer bark and the thinner and lighter colored inner bark may be seen.

The heart wood is not essential to the growth of the tree, except to give it stiffening and strength. Old trees may often be found making good annual growth when the heart wood is rotted away, leaving the trunk quite hollow.

THE SAPWOOD, so called because it contains the moving sap of the tree, is the outer or new wood next to the bark. It is softer and more sappy than the heart wood, and is usually easily distinguished from it by its lighter color.

THE FIBER OR INNER BARK, is a thin layer of bark next to the sapwood. It is composed of a number of layers of soft, flexible, but very tough fibers. In some kinds of trees it is much more prominent than in others. In the basswood it is quite plentiful, and at one time was used largely for strings in greenhouse and nursery practice, but the fibre of the Raffia palm is now used in place of it.

THE RIND OR OUTER BARK, as it appears upon a young stem or branch is made up of three thin layers. On the outside is a soft green layer, which gives the green color to fresh growing shoots. On the outside is the epidermis, or cuticle, a thin, smooth, transparent covering like tissue paper. Between these is the corky layer, which does not show at first, but gradually develops as the wood ripens, and hides the green layer beneath it. This corky layer is at first usually of some shade of brown, and gives to the young wood its peculiar color, by which an experienced grower may readily distinguish varieties by the bark alone. The bark of the Northern Spy apple tree, for example, is a dark, reddish brown, while that of the Yellow Transparent is of a brownish yellow.

On the surface of the bark of young stems may often be noticed small oval spots or patches, usually of a different color from the epidermis. These are the lenticles, formed by a group of corky cells. In the cherry they are very large and prominent, forming horizontally on the trunk; on the apple they are smaller and more numerous and form perpendicularly.

THE SHEDDING OF THE BARK.

The bark retains these three distinct layers only for a short time. As the tree or branch becomes older, the corky layer gradually increases in thickness, and after a time bursts the epidermis, and be-



Fig. 2214.
The deeply ridged bark of the locust (after Craig).



Fig. 2215. The Pear Stem. The bark beginning to roughen (after Craig).

gins to break up and fall away in scales. Each kind of tree sheds its bark in a manner

peculiar to itself. The shape of the scales is due primarily to the arrangement which the lenticles take in the young wood.

The age at which trees begin to shed their bark varies greatly with different species. In the grape vine, the inner bark is renewed each year, and that formed the year before is thrown out in long shreds. The sassafras has rough bark in two or three years, while the sweet chestnut often retains its smooth bark for over twenty years. The bark of the beech never becomes scaly, because it begins early in life to fall away in granules.

The apple and pear trees usually show a scaly bark at ten or twelve years of age. Trees that have been well cultivated and cared for retain their smooth bark much longer than those which have been neglected.

THE KIEFFER PEAR.

NURSERYMEN will be interested in the following statement by the Rural New Yorker, in response to a query from Benton Harbor, Mich :

We have been watching the Kieffer pear closely in this market. A few years ago in New York, during its season, the push carts and fruit stands were well covered with it. Many were sold to eat out of the hand, and the result, nine times out of ten, was evidently a disappointment. Gradually the fruit has disappeared from these retail stands, until now it is rarely seen. This is good evidence that the buying public recognize it, and will not buy it for eating from the hand. We believe that its sale will be limited to the demand for canning purposes, and there are few better fruits for this purpose. In order to make sure we have asked some leading fruit

dealers for opinions as to the future trade in Kieffers."

Stearns & Brothers, Baltimore, Md., state that the Kieffer does not bring the prices that other varieties do, and think that too many of them are grown. S. H. & E. H. Frost, New York, say : "The foreign demand seems increasing somewhat. This will help to relieve the market, and it may be that large increased production might pay many years to come."

Brown & McMahon, Philadelphia, say : "Our opinion is that the Kieffer pear business is very much overdone, and instead of planting more trees they had better cut some down." Archdeacon & Co., New York : "It may be very good for canning or cooking ; in fact, in the South it is a pear which they prefer to all others, probably because they have no others."

PRUNING THE ORCHARD.

PRUNING is a means to an end. In the practice of pruning there should be in the mind of the operator, some definite purpose in view. The kind of pruning will depend on the purpose for which the tree is intended, whether for wood, for fruit, for shade, or for ornamental purposes.

NATURAL PRUNING.—Trees under natural conditions are constantly being pruned. Every fall nature strips the trees of their leaves. This is their regular annual prun-

ing knife, comes along and removes the dead branch. In this way trees are constantly ridding themselves of useless branches, and the pruning so effected is undoubtedly a benefit to the branches that remain, and to the general growth and improvement of the tree.

ARTIFICIAL PRUNING. The trees of the orchard by virtue of selection, hybridization and cultivation are in a highly specialized condition, and to be maintained so must receive special treatment. The fruit tree is in



FIG. 2216.

FIG. 2217.

FIG. 2216.—A painted wound almost healed over.

FIG. 2217.—Cross section of trunk of apple tree. (S)—Sapwood; (I)—Portion changing from Sapwood to Heartwood; (H)—Heartwood. At the outer end of the line is the thin cambium layer under the bark.

ing. Besides this, there is a continual pruning of buds and branches. If every bud on a tree were allowed to develop, the tree would become a veritable brush-pile. The buds most favorably situated as regards light, get most nourishment, and the less favored become starved and drop off. The lower limbs of trees and those within the crown become weakened and die from lack of sunlight; then the wind, nature's prun-

ing knife, comes along and removes the dead branch. In this way trees are constantly ridding themselves of useless branches, and the pruning so effected is undoubtedly a benefit to the branches that remain, and to the general growth and improvement of the tree.

A correct understanding, therefore, of this machine and all its working parts, is necessary to its most successful manipulation.

STRUCTURE OF THE TREE.—If the trunk of



FIG. 2218.

FIG. 2219.

FIG. 2220.

FIG. 2221.

FIG. 2218.—The healing of a torn wound, also cut too long.

FIG. 2219.—A well-healed wound, the result of a properly made cut.

FIG. 2220.—Result of leaving a stub.

FIG. 2221.—Result of removing scions from grafted limb before the cut has been entirely healed over.

a tree, or a large-sized branch or root be cut through, it would show the bark, the light colored sap-wood and the darker central portion, or heart wood. Just between the bark and the sap-wood, if we could see it, is a layer of very delicate tissue known as the cambium.

CAMBIUM.—The cambium is the only tissue that retains the power of active growth. It can best be seen by removing the bark on some actively growing tree, and so sensitive is it that exposure to air will kill it in a few minutes. It appears as a soft slimy or doughy substance that can be scraped off with the thumb-nail. The cambium is a very delicate substance, easily affected by frost or wet, and may be easily crushed or torn. It is the giving away of the cambium that causes the bark to strip off from the wood. During the growing season, the cambium gives rise to a layer of wood on the inside and a layer of bark on the outside, and a thick layer of cambium is left between the new wood and bark to carry on the growth of the tree next year.

THE BARK.—In bark, nature has formed a perfect covering for the delicate cambium beneath. Being corky on its outer surface, the bark of a waterproof covering to keep

in the sap and at the same time exclude external moisture from decaying the cambium. Bark being somewhat soft and spongy in its construction, contains considerable air, which, acting as a non-conductor of heat, serves the purpose as a dead air space in a building, and keeps the cambium from being frozen or dried out. From this it appears how careful nature is of the delicate parts of the tree, and in all our operations of pruning we should exercise similar care. The orchard should always receive the best thought and practice of its owner, and should never be left to the tender mercies of the hired man or the itinerant pruner.

THE WOOD.—The light-colored portion of the stem is the sap-wood. It is through this that the sap containing its dissolved mineral elements, finds its way to the leaves. In the leaf the watery portion of the sap is evaporated, and the remainder, under the action of light, is combined with the carbon-dioxide of the air, and returns downward through the cambium to be used up in growth. The darker portion of the stem is the heart-wood, which is dead tissue, whose only use is to give support to the tree.

THE ROOT.—The root presents the same appearance when cut across as the stem,

and may for present purposes be considered as simply the branched extension of the stem underground. The cambium of the stem is continuous with that of the root, and is covered and protected with bark, ex-

cept at the growing points. The covering of bark, being as was said before, impervious to moisture, requires that all water absorbed by the plant under normal conditions, be taken in at the root tips. In order to facilitate the easy and speedy passage of moisture into the plant, we have the small hair-like bodies known as root-hairs.

ROOT-HAIRS.—Root-hairs may best be seen on some seedling plants such as beans,

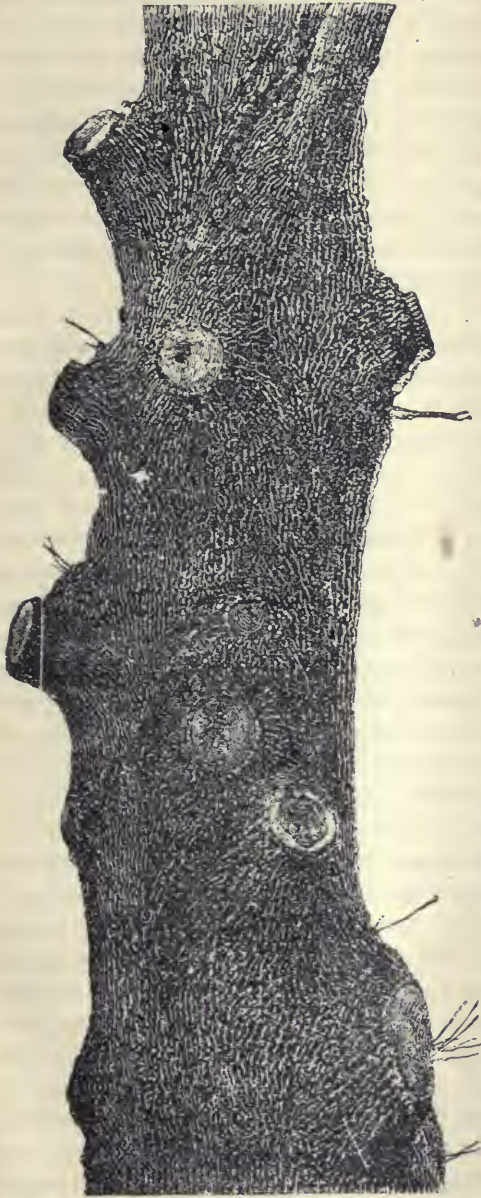


FIG. 2222.—Oak tree from which some of the lower limbs have been properly cut and most of the upper ones improperly cut. (By permission from U. S. Year Book of Agriculture, 1895.)

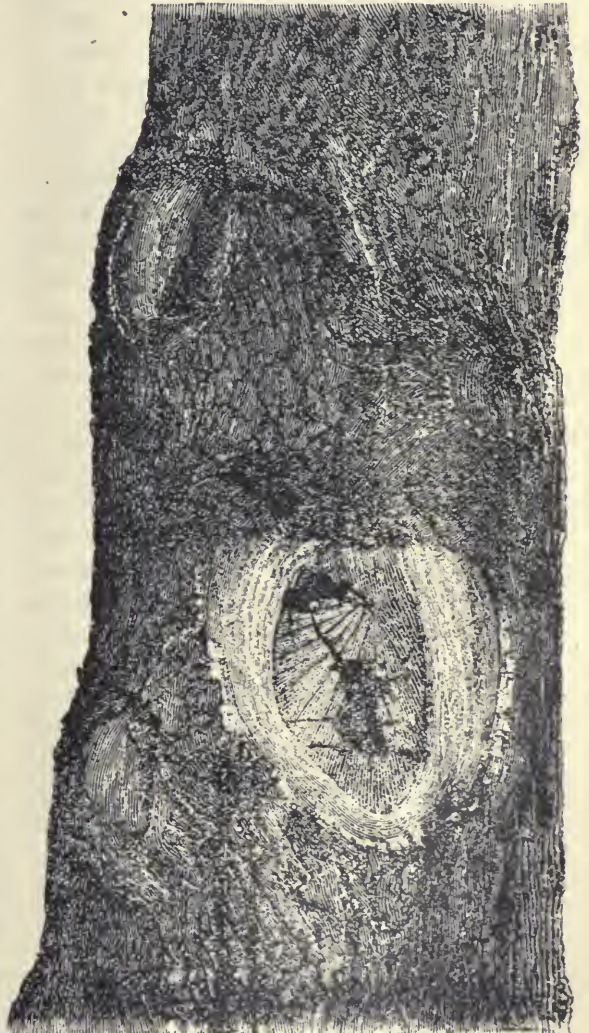


FIG. 2223.—Decay caused by the cutting of too large a limb. (By permission from U. S. Year Book of Agriculture, 1895.)

yet every plant has them in thousands. Like the cambium, the root hairs are so delicate that drying for a few minutes will kill them. It is the destruction of the root-hairs that makes successful transplanting so difficult. If trees could be taken up and planted again without the loss of root-hairs they would never know that they had been moved. This, however, is practically impossible except with the smallest seedling trees, yet it shows that too great care cannot be exercised in protecting the roots of trees during transplanting. It is owing to the heavy loss of fibrous roots with their root-hairs that make it so difficult, nay almost impossible, to transplant large trees. Most of the smaller roots with their absorbing root-hairs are cut away, and the large roots on account of their thin bark have little power of producing the hairs. The leaves on coming out evaporate the sap from the tree, and since there are but few root-hairs to take up moisture from the soil, the tree dries up and dies.

PRUNING FOR TRANSPLANTING.—It is a good practice in the transplanting of large trees, or indeed of any tree, to cut back the large roots the year previous to taking up, so as to cause the tree to send out nearer the trunk, a strong growth of fine roots, which will be removed when the tree is dug up. Since more or less roots are cut or broken off in transplanting, the top should be cut back proportionately with root. All broken or decayed roots should be cut back to fresh healthy tissue, otherwise they become a source of disease. Roots pruned smoothly without injury to remaining tissue will callus over quickly and send out a good growth from the callus. For this reason the rooting of layers can be hastened by cutting away the bark on one side and exposing the cambium to the soil so that a callus is formed.

FORMING THE YOUNG TREE.—As soon as the young tree has become established after

transplanting, the formation of its top will commence. When the head of the tree is once formed the trunk does not lengthen, so that the lowest limbs must be started at the height we wish them to be in the mature tree. On account of ease in picking the fruit a low spreading head used to be considered most convenient. Of late years, however, the greater frequency of cultivation and driving back and forward in spraying, make the high formed head most convenient. Upright growing varieties such as the Spy may be started lower than trees of crooked or drooping growth such as Greening or Roxbury Russet.

NUMBER OF MAIN BRANCHES.—Trees should not be started with too many main branches, as afterwards they thicken up and crowd each other and make it necessary to cut out very large limbs. As nearly all of the food of the tree is made by the leaves, the removal of a large limb with a great deal of foliage is a blow struck at the vigor and longevity of the tree. Trees so pruned suffer a process of starvation till the normal foliage is again restored, while the large wounds are a source of disease to the tree.

IDEAL PRUNING.—The ideal pruning consists in removing not branches but buds, not in checking growth but in directing it. It is easier and also less shock to the tree to pinch off buds here and there, than a few years later to saw off large misplaced limbs. Trees should be so formed and shaped when young that in later years trimming should be only slight, and it would never be necessary to cut out large limbs. Three main limbs started at different points so as to evenly distribute their pressure on the trunk, will make a well formed head. Opposite crotches are to be avoided, particularly in peach and plum trees, for when the limbs are heavily loaded the trunk is apt to split down by the wind and the tree is practically ruined.

PRUNING FOR FRUIT.—Trees have two

natural methods of reproducing themselves. The first is by means of shoots or buds; this is known as the vegetative reproduction or reproduction by growth. Every bud on a tree if placed under proper conditions, as is done in the practice of grafting or budding, is capable of producing a tree like the one from which it was taken. The other method of reproduction is by the seed of the fruit. If the tree is growing a great deal of wood it produces little fruit and *vice versa*. The skill of the pruner is required to maintain the proper balance between the reproduction by growth and by fruit. If one kind of reproduction is getting too much the start of the other, it is only necessary to check the predominant one. If trees are pruned in the growing period, growth will be checked and fruiting stimulated. Summer pruning should be mostly confined to heading back too fast growing branches. If, on the other hand the centre of the tree is thinned out, the fruit-bearing branches are removed, and the energies of the tree are again forced into wood growth. The growth of the tree might also be checked by stopping cultivation and sowing the orchard to some clover crop, or the plow might be made to run a little deeper so as to cut off the surface feeding roots, and root prune the tree.

PRUNING FOR WOOD GROWTH.—Pruning for vegetative wood growth is that which has been outlined for the young growing tree. Cut out all dead, broken and deformed limbs and those which cross or rub one another. Care should be taken to keep the tree free from suckers, so that there is a free circulation of air through the tree, and the sunlight is let in sufficiently to give the fruit a good color.

HEALING OF WOUNDS.—Limbs to be removed should be cut off as smoothly as possible with a sharp saw, and as close to the main stem as possible. When a limb enters a shoulder at the trunk, the cut should be as close to the shoulder as possible, yet

never through it. There should never be any stump left because the cambium dies back, and when the stump decays there is a hole left which is apt to cause the trunk of the tree to rot and become hollow. Pruning shears are bad tools, as they pinch the bark and injure the delicate cambium beneath, and a badly healing wound is the result. Torn wounds are a source of danger



FIG. 2224.—Soft maple, cut back, giving the undesirable effect of a brushpile on a hop pole in winter, and a haycock on a gate post in summer. (By permission from U. S. Year Book of Agriculture, 1895.)

to a tree. If large limbs are to be removed, which should never happen in good pruning, there is a danger of the weight of the limb tearing the bark. To avoid this cut from below first and meet this cut with one from above, or if this cannot be done cut off the limb a foot from the tree and remove the stub. Large wounds should be smeared

over with tar or thick paint to keep out moisture.

TIME TO PRUNE.—It is very important that the healing process should start soon after the wound is made, otherwise the cambium will be killed back quite a distance from the exposed surface and healing will be retarded.

For this reason winter pruning should be avoided, particularly in frosty weather. In the early fall or late spring, the cambium is active, and wounds made at this time start to heal at once, and there is little or no dying back of the cambium.

Southend, Ont.

H. N. HUTT.

NO. 1 AND NO. 2 APPLES.

IN the discussion of the Fruit Marks Act at Cobourg, it was plainly pointed out that more definite grades were needed. As it now stands a shipper may use any designation he chooses to mean No. 1, or No. 2, and the inspectors are often at a loss to know just what is meant by such marks as A. B. Straight Grade, X, XX, Selected, Choice, etc.

Now if some designation were adopted for general use, and persons desiring to use other marks than that legalised were obliged to have such marks defined and registered before using them, it would much simplify the work of the inspectors.

Another point still undecided is whether the grade No. 1 or No. 2 should include certain definite sizes. If this were possible the grades would be much more satisfactory to the buyer, who would at once know whether his No. 1 apples were 2 inches or 2½ inch apples, a most important point; they would also be much more service to the grower, who would find his apples would take on more value in the markets because of the sizes indicated by the grade.

Surely no apple except Fameuse, Pomme Grise, Jonathan, Lady or Wine Sap, should be classed No. 1 unless it were 2½ inches or upwards in diameter; or No. 2 unless it were at least 2¼ inches in diameter.

In these matters it is most important to be in line with other exporters from this continent, and it will therefore be interesting to quote from the proceedings of the North American Apple Shippers' Association the following resolution on the grading of apples:

Resolved, that the standard for size for No. 1 Apples shall not be less than two and one-half inches in diameter, and shall include such varieties as Ben Davis, Willow Twig, Baldwin, Greening and other varieties kindred in size. That the standard for such varieties as Romanite, Russett, Wine Sap, Jonathan, Missouri Pippin and other varieties kindred in size shall not be less than two and one-quarter inches. And further that No. 1 Apples shall be at time of packing practically free from the action of worms, defacement of surface or breaking of skin; shall be hand picked from the tree, of bright and normal color and shapely form.

No. 2 Apples shall be hand picked from the tree; and shall not be smaller than two and one-quarter inches in diameter. The skin must not be broken or the apple bruised. This grade must be faced and packed with as much care as No. 1 fruit.

THE GEORGIAN BAY FRUIT GROWERS' ASSOCIATION comprises a large number of the best fruit growers and farmers of the district. They were represented at our Cobourg meeting by Mr. Saunders, Mr. Cox and others, who were most anxious

that the next meeting of our Association should be at Collingwood, but in view of the invitation from Walkerton, which has been repeated three successive years, they waived their claim for the present.



FERNS FOR THE HOUSE.

THE delicate and tender nature of many of the prettiest and most graceful growing varieties of this beautiful and interesting class of plants, prevents their being used very extensively for house decorative purposes. The dry, arid atmosphere of dwelling houses induced by artificial heating, more especially in winter, being particularly destructive to the delicate texture and formation of the fairy-like fronds of many varieties of ferns.

Ferns thrive best in a moist, humid atmosphere, and although these conditions cannot be given them to the same extent in a dwelling house as in a conservatory or greenhouse, or even where ferns are found growing amidst their natural surroundings, still much pleasure and satisfaction can be obtained by selecting suitable varieties, and by modifying as much as possible the unnatural conditions that surround all plant life in a dwelling house. In fact many varieties can be kept fresh and bright looking, grown as house or window plants, much longer than many varieties of foliage plants commonly used for house decorative purposes.

It would be a waste of time and energy to endeavor to grow the delicate *Adiantum* and

similar tender species of ferns under ordinary conditions in a dwelling, or even in a window, the finely formed lobes of their tender fronds being particularly susceptible to the dry atmosphere, if even they succeed in making any progress at all in the way of growth.

Probably amongst the almost innumerable species and varieties of ferns known to floriculturists, there are none better adapted for house or window culture than the many types of the *Pteris* fern, sometimes called feather ferns from the close resemblance many of these ferns have to the formation of a large feather.

The long whip-like, half drooping fronds of *Pteris serrulata*, and the crested varieties of this *Pteris*, such as *Pteris cristata* and *Pteris wimsetti*, with the tips of their hard glossy green fronds more or less covered with the moss-like formation that give them the common name of crested ferns, are perhaps amongst the easiest grown and most enduring types of the *Pteris*, especially when grown as house or window plants.

Pteris cretica or Cretan *Pteris* is another variety that succeeds well in a dwelling house and is quite as easily grown as any variety of *Pteris*, in fact many prefer it to

FIG. 2225. *NEPHROLEPIS BOSTONIENSIS*.

Pteris serrulata or the crested varieties, as being less liable to attacks of fern thrip and red spider, the two latter being the greatest insect foes of fern life.

Another variety, *Pteris hastata* or Spear fern, specially commends itself to the indoor fern grower not only from the fact that it is quite as easy of culture and as capable of resisting insect attacks as the other varieties mentioned, but the pleasing variation in its habit of growth makes it particularly acceptable either as a pot plant, or in the make-up of a fern pan or fern dish.

The variegated type of *Pteris cretica*, viz.: *P. cretica alba lineata*, that takes its specific name (*alba lineata*) from the broad line of white that runs through the centre of each segment of its otherwise green fronds, is another variety that shows up splendidly amongst the plainer types of *Pteris*. In fact, in a well grown specimen, the white markings referred to often predominate sufficiently to make a plant of this variety

quite a conspicuous object amongst a collection of ferns. The fronds of this fern are quite hard when matured, making it quite an easy task to sponge them occasionally to assist their growth, as well as to prevent attacks of insect pests.

All of the varieties of *Pteris* mentioned are of a comparatively dwarf habit, the tough leathery texture, as well as the glossy surface of their fronds making them specially suited for house or window culture.

Pteris longifolia succeeds well in a house, and retains its freshness for a long time, its stronger growing habit however making it more suitable for large collections of ferns, or for use in large jardinières than for ordinary house or window culture.

The beautiful *Pteris argyrea* (Silver Pteris) is unfortunately of a very delicate nature and does not as a rule succeed well in a dwelling house or window. As a greenhouse or conservatory fern it cannot be ex-

FIG. 2226. *ASPIDIUM CORIACEUM*.



FIG. 2227. *PTERIS ARGYREA*.

celled in beauty, either in form or color, the broad rich silver markings of its large graceful fronds make it an object of attraction to all fern-lovers. It is seldom, however, that a perfectly grown specimen of this fern is seen, as it requires exceptionally good culture to produce a good specimen.

The *Nephrolepis* (Sword fern) gives us several types very useful as house or window ferns. The popular Boston fern (*Nephrolepis Bostoniensis*) is perhaps the most graceful, as well as one of the easiest of culture amongst ferns, its long arching fronds making it particularly adapted for furnishing large jardinières, mantels, etc. *Nephrolepis exaltata* or the true Sword fern is also a useful house or window plant, but is not as robust as the Boston fern. The dwarfed growing types of this fern, *N. cordata* compacta, and *N. phillipensis* are useful ferns, but not as enduring or lasting in a house as *N. Bostoniensis*.

Another pretty and useful fern for house

culture and one that until recently has been little seen, either as a house or window plant is the dwarf, dense growing *Aspidium coriaceum* or leather fern, deservedly taking the latter name from the extremely tough texture of its fronds as compared with many ferns. This characteristic enables this fern to resist the bad effects that a dry atmosphere produces on ferns for a much longer period than many others. Its dense, dwarf habit is also another feature that recommends it either for the window or greenhouse, or for house decoration. I have known plants of this fern retain their freshness for a longer period than many house plants such as palms and cordylines, without any extra care being bestowed on them.

The graceful growing *Asplenium bulbiferum* cannot be omitted from the list of ferns suitable for a window or for house decoration, but it succumbs sooner to drought and a dry atmosphere than some of the others I have mentioned. The long spear-like, hard fronds of *Asplenium marinum* (another distinct type of *Asplenium*) makes a most enduring and pretty fern for the house or window and is very easy to grow.

Amongst our native ferns that are espec-



FIG. 2228. *PTERIS CRETICA*.

FIG. 2229. *PTERIS SERRULATA*.

ially suitable for indoor culture is the dwarf growing Polypody. This fern is almost evergreen in character and differs but slightly either in form or habit from the English Polypody (*Polypodium vulgare*) both of which are most enduring ferns as house or window plants. I have used specimens of both the Canadian and English Polypody for house decorative plants for several years past, the plants having in almost every case retained their fresh bright appearance for two or three months without any more care or attention than is usually bestowed on the best house plants, viz.: *Aspidistras*, *Cordylines*, palms, etc., a fact that certainly placed them high in my estimation as house plants. It is easy enough to secure a plentiful supply of the native Polypody, as it grows freely in almost every part of Canada, more especially amongst rocks and stones. Used solely as an occupant of the fern pan or as a pot plant, or mixed in with other kinds of ferns, these varieties of the Polypody are a valuable addition to the list of ferns suitable for house or window culture.

Another stronger and coarser growing fern, useful for house decoration or for the greenhouse, is the *Aspidum falcatum*, or as it is sometimes catalogued *Cyrtomium falcatum*, another iron-clad fern capable of

resisting for a longer period than most ferns the atmospheric condition unsuitable to plants, usually found in a dwelling house.

Many other varieties of ferns could be mentioned as being suitable for house or window culture, but those given will be found sufficient to make a variety to supply quite a large window or for house decorative purposes.

A word or two perhaps on the culture and care of ferns may perhaps be acceptable.

There are very few ferns but delight most of all in soil of a light, porous nature. A compost should be made of one-half well rotted, clean leaf mould, the other half to be made up in equal parts of sharp, fine sand and loamy potting soil, the latter being enriched with a small quantity of dry pulverized cow manure. Mix this compost well together before using.

From the fact that ferns like plenty of moisture at the roots and around about them, the mistake is often made of not giving the pots they are to grow in a plentiful supply of drainage. This latter feature is very necessary when potting ferns or filling fern pans, as ferns will not live, to say nothing of thriving, in a sodden soil soured by stagnant water, especially when placed in a window or dwelling house. Use fully an

FIG. 2230. *PTERIS WIMSETTI*.

inch of broken pots in all except perhaps very small pots, when the quantity of drainage can be reduced in proportion to the size of the pot.

Water ferns thoroughly at the roots when they require water, never allowing the soil to become anything approaching a dust dry condition, in fact with good drainage the soil should always be kept moist but not soddened.

When potting or re-potting ferns do not be too liberal as to the size of the pot; using a pot too large in proportion to the quantity of roots is detrimental to almost all kinds of plants, especially to house or window plants where the surroundings are not of a nature to induce quick root action so as to necessitate an abundance of room for the roots.

The fronds of most of the ferns I have mentioned can be easily washed with a small piece of soft sponge or some similar material, moistened with clean water. Syringing the growth with water from a fine atomizer spray will also be beneficial, or the growth of the plants may be dipped in a pail of water once or twice a week. This can be done by turning the plant upside down and allowing the fronds only to remain under water for a minute or so. By adopting these means before insects attack the growth, the destructive visits of the fern thrip and red spider can often be prevented and the plants kept fresh and healthy looking.

The insect pests that are most likely to prove troublesome are the fern thrip and red spider; the green fly often makes its appearance, especially on the young fronds. Shaking or brushing off the green fly is probably the safest way to dispose of green fly; if tobacco water is used it must be made very weak. The presence of thrip and red spider will be first seen by the whitish appearance the fronds present, especially near the centre rib of each lobe or frond. Weak tobacco water applied to the growth, especially on the underneath side, is the best remedy for thrip. The fern thrip is a very minute insect and cannot be discerned with the naked eye; a magnifying glass will however reveal its presence, when it will be seen burrowed snugly between the upper and lower layers of film that constitute the frond. Nothing is better for destroying thrip on ferns than frequent applications of tobacco water. Frequent syringing and sprinkling the growth of ferns with clean water is one of the best preventives of the attacks of the almost invisible but destructive red spider, one of the worst pests of indoor plant life.

Ferns have during recent years become so popular and necessary as accessories to floral decorations, that a word or two on their culture and care may perhaps be interesting to readers of the Journal.

W. HUNT.

Hamilton.

JAPANESE FERN BALLS.—A novelty of recent introduction by our florists is the Japanese Fern Ball, an apparently dried up and lifeless ball of roots, which when soaked in water for fifteen minutes, every day for a few days, then hung in any desired position, growth soon starts, and it becomes a mass of beautiful ferns. All that is necessary afterwards is sprinkle occasionally. Or the

ball may be cut in two, placing flat side down, thus getting two dishes of ferns. They may be allowed to dry up any time and started again by watering as before. If they prove to be anything like the introducers' description, they will be a most desirable and attractive novelty both for the window garden and table decoration.

THE NARCISSUS.

IN this genus we have a long list of established favorites, remarkable alike for the elegance, fragrance, and earliness of their flowers. In one respect the species are all alike ; they delight in rich soil made porous with plenty of sand and well-rotted manure. All of them are also quite hardy, and from the early period at which their flowers are produced, they are of the utmost consequence to the flower gardener.

Several of the species are bound to bear forcing well, and for this purpose have become a staple article in the Dutch florists' trade, and several varieties have been originated by them, suited by the selection of their parentage, to bear this trying course of treatment. The following are commonly grown for forcing : Bazelman Major, Soleil d' Or, Grande Primo, and Grande Monarque. These, with the double Roman and others, should be potted in September in a mixture of equal parts of fresh loam, rotted manure, and leaf mould, with half of either quantity of sand. In potting, the neck of the bulb should be kept above the surface of the soil, that the roots may have that much more space in the pot ; and when the rooting is completed they should be placed together, either in a cold frame or in some convenient place, so that they may be covered a foot thick with fresh leaves. These exclude light and prevent frost from getting to the roots, both an essential to a speedy excitement of root growth.

In about five or six weeks it will be found that many of them have filled the pots with roots, and these may be taken to a temperature of 55 degrees to bring on their flowers ; and if repotted when the first two leaves have grown a few inches, the flowers will be considerably larger ; but before any plant is taken from the bed of leaves, be sure that it

has made a good stock of healthy roots, or it will be spoiled in the forcing process. Narcissi do not require a powerful heat to bring out their flowers (55 degrees will do it better than any other), and the supply of water should be sufficient but by no means excessive.

The Paper narcissus (*N. papyraceus*) is now, perhaps, more extensively forced than either of the above mentioned. It is grown in immense quantities by the florists of New York and other large cities, and next to the Roman hyacinth is the bulb most extensively grown for this purpose. When grown on a large scale it is planted in boxes of soil about five inches deep, at a distance of three to four inches apart, and treated as recommended above. This, like nearly all other bulbs, is of no value after being forced, and the roots may be thrown away.

When grown in the open borders the bulbs should be planted in October, in newly dug and well manured ground, at a depth of three inches, reckoning from the top of the bulb to the surface of the soil. This will not be too much for any, except the jonquils, which, from having smaller bulbs, may be placed an inch nearer the top. At this depth, and with plenty of manure about them water will not be required, but they will grow strong and flower finely. When planted in beds, and it becomes necessary to remove them to make room for other plants, it should be done as soon as their beauty is past. As the bulbs are by no means mature at this time, they should be "laid in" in some slightly shaded place until the foliage is quite withered, when they may be taken up, dried, and stored away until wanted for the next planting season.

Most of the species are from the south of Europe, and are propagated by offsets. They were among the earliest cultivated garden flowers.—*Garden and Farm Topics.*



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January. If possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

"COPY" intended for publication in The Canadian Horticulturist, should be addressed L. Woolverton, Grimsby, Ontario.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

NOTES AND COMMENTS.

THE NEXT MEETING of our Association will be held at Walkerton, near the home of Mr. Sherrington, our fruit experimenter for the Lake Huron District.

TOPWORKING THE NORTHERN SPY.—Mr. Geo. T. Powell, of New York, recommends the Spy as stock on which to graft or bud other varieties, because its wood is so hard and fine grained. He has been grafting on it scions of King and Jonathan with excellent results.

THE JOURNAL.—The editorship of this Journal remains in the hands of Mr. L. Woolverton who hopes to be able occasionally to attend meetings of Horticultural Societies and Farmers' Institutes, and to visit the various fruit growing sections of the province, and thus gather material to very much increase the value of this publication.

A REPORT OF THE KIEFFER SHIPMENT.—Mr. Wm. Wilson, the inventor of the new Canadian fruit package accompanied a car lot of them to Glasgow packed with Kieffer pears. He reports that the officials of the Donaldson Line gave him every opportunity to test the temperature of the cold storage chamber as often as he chose during the passage over, and he found it quite satisfactory, standing between 37° and 41° during the whole voyage.

He was kindly received by the consignees, who sold his cases of Kieffers at 6s., 7s. and 8s. for the 112 pear grade. This case weighs thirty-two to thirty-five pounds, while the half case we have been using weighs about twenty-seven pounds. These sales seem to indicate a decided advantage for the new case. The outside measurement is 21½ x 10¾ x 12½ inches, and the pears be so arranged that any sizes will fit the

trays, and the outside packages will always be uniform. The fruit arrived in perfect condition. The consignees advise holding over pears until about the middle of November, because the best prices are obtainable in December, and cold storage charges here are less than in England. Bartletts, Howells and Anjous should all carry well and bring good prices, especially the Howell, which received many words of praise, as one of the cleanest and best of export pears for us in Ontario.

AWAY WITH BILL BOARDS.—What a disgrace to our fair country that those huge bill boards, advertising quack medicines, tobacco and other goods, set in the midst of otherwise beautiful views of rural scenery. Surely it is time that our people who have good taste should arise and seek legislation that will prevent such defacement of our beautiful country.

The American Park and Out-door Association, of which Mr. W. H. Manning, landscape architect, Boston, Mass., is secretary, is making determined efforts to create public sentiment adverse to such abuse in public advertising.

A Bill has been introduced to the Legislature of Illinois of which the following are the provisions:—

Section 1. That no person shall paste, stick up, paint, brand or stamp, or in any manner whatsoever put upon or attach to any building, fence, gate, outbuilding or grounds of any of the charitable, educational or penal institutions of the State of Illinois, or upon any property belonging to the State of Illinois, or to any County or Township therein, any written, printed, painted, or other advertisement, bill, notice, sign or poster.

Section 2. That no person shall paste, stick up, print, brand, stamp, or in any manner whatsoever put upon and attach to any building, fence, bridge, gate, outbuilding or grounds of another, without first obtaining the written consent of the owner and also of the person in possession or occupancy thereof, any written, printed, painted, or other advertisement bill, notice, sign, card or poster.

Section 3. Any person violating any of the provisions of this Act shall be guilty of a misdemeanor and, upon conviction thereof, shall be fined in a sum not less than Three (3) nor more than Twenty

(20) Dollars; and such written, printed, painted, or other advertisement, bill, notice, sign, card or poster is hereby declared to be a public nuisance, and may be removed or obliterated and abated by any person.

Section 4. The provisions of this Act shall not prohibit any person from posting or putting up any notice required by law or order of any Court to be posted or put up, nor the posting or putting up of any notice particularly concerning or pertaining to the grounds or premises upon which the same is so posted or put up.



FIG. 2231. REV. A. E. BURKE.

REV. A. E. BURKE, who came all the way from Prince Edward Island to meet with us at Cobourg, is a graduate of St. Dunstan's College and Laval University, Quebec, and is now Rector of Sacred Heart Parish, Alberton. He sets an example to the clergy in general, by the interest he takes in fruits and flowers, recognizing them as God's gifts, and worthy of our careful attention.



FIG. 2232. MR. THOMAS MEEHAN.

DEATH OF THOS. MEEHAN. On the 23rd of November last this eminent botanist and nurseryman passed away. His devotion to the interests of the parks, public schools

and other civic interests of his town, and unselfish labors for the advancement of botanical studies, have already combined to make his name more enduring than brass or marble.

PRESIDENT J. W. BIGELOW of Nova Scotia and his excellent wife were at Buffalo, in the interests of a Nova Scotia exhibit of commercial apples. Of course the famous Gravenstein was most prominent. He pointed out to us several exhibits contributed by enterprising orchardists, as for example Mr. A. C. Starr, who has twenty six acres in apples, which yielded this season 2,500 barrels, and netted \$8000, and who showed 84 varieties of apples and 20 of pears; Mr. Herbert Johnson of Wolfville; Mrs. Olivia Johnson of Wolfville, who is a graduate of the School of Horticulture, and who showed 30 varieties of apples; Mr. Eliot Smith, who showed the finest King and Gravenstein and who prides himself upon growing the finest samples of these varieties in the world; the Provincial Farm at Truro, which showed a fine exhibit of potatoes and some monstrous sugar beets, and S. Blair of Napanee Experimental Farm, who showed 60 bottles of fruit in good condition.

QUESTION DRAWER.

Clipping Evergreens.

1265. SIR—How often and when should evergreens be clipped.
London.

J. C.

Generally speaking, we would not advise clipping evergreens, unless to aid in bringing about a symmetrical habit of growth. The fantastic shapes of the topiary garden are curious, but nature's graceful branches are far more beautiful than the form of beer barrels, or pyramids.

Generally speaking, this work may be done at any season, and as often as the owner

pleases, without much injury to the vigor of the tree; but we usually prune evergreens in springtime just before the summer growth begins.

Club Root.

1266. SIR,—Kindly give cause of Club Root in cabbage and what will prevent or stop it?
Port Colborne, Ont.

E. MILLIHEN.

Club Root is a disease peculiar to cabbage, cauliflower, turnip, and other plants of the same family. One of these, the shepherd's purse, one of our most common weeds, is

also quite subject to it. This disease is due to one of the low forms of fungus, known as a slime mould, which occurs as a slimy mass and gains access to the young roots causing the well-known malformations.

After the large club roots are formed, innumerable spores are produced and are set free by the rotting of the roots and are left in the soil, where they apparently remain indefinitely continuing the disease from year to year.

The only way to check the disease is by preventive methods, as remedies are unavailable after a crop is once infected. The best way is to follow a crop rotation in which none of the cruciferous plants, such as cabbage, cauliflower, turnips, or rape are grown on the ground for several years. If this is combined with clean cultivation, and no weeds are allowed to offer a host for the continuation of the fungus good results will follow.

It has been said that lime, used at the rate of 75 bushels to the acre, has been found effective in destroying the spores in the soil, but no reliable data upon this point are yet obtainable.

O. A. C., Guelph.

H. L. HUTT.

Blight of Geranium.

1267. SIR,—I send you in a box two leaves of Angels Trumpet and some Ivy-Leaved Geraniums which are affected with a blight which is new to me. Am usually very successful with plants, and can manage the living creatures but don't know what to do with this. Sent for Ghishurst Compound and sponged with it once, but don't think it will do for from the larger of my two plants it has cut off every leaf and bud. This house is stone and we have sixty-five plants, and I am trying to do a little business in the plant line, there being no greenhouse here.

Would you please tell me what this blight is, and how to manage it.

C. M. HURLBURT,
Manitowaning. Manitoulin Island, Ontario.

The leaves of your Ivy-Leaved Geranium are affected with a *leaf-spot* fungus known as *Cercospora*.

In the line of treatment, you should pluck all the diseased leaves and burn them, then at intervals spray the remaining plants with

a dilute Bordeaux solution, made as follows : Dissolve 4 tablespoonsful of Copper Sulphate in 1 quart of hot water ; also dissolve 4 tablespoonsful of fresh lime in 1 quart of hot water. Pour these solutions together into a pail containing 1 ½ gallons of water. This mixture, prepared in this way, loses its value in a few days, so new solutions should be made whenever the plants require to be sprayed.

O. A. C., Guelph.

W. LOCHHEAD.

Rose Buds Not Maturing.

1268. SIR,—I have a Clothilde Soupert Rose which has had only one flower ; buds form on it but do not mature. Is this for want of nourishment or too much or too little water ? It is regularly watered, is healthy and free from insects. Do such plants need rest in winter ?

Yours truly,

Simcoe.

WILLIE MURRAY.

As the rose plant in question appears to be in a healthy condition as far as its growth is concerned, the dry arid atmosphere of the house is probably the cause of the buds not maturing. Roses like a moist humid atmosphere to grow and flower in. Sprinkle or syringe the plant with clear tepid water two or three times a week, this will help it.

If the rose has flowered all the past summer and autumn, a rest will benefit it. This can be obtained by placing the plant in a cool temperature of about 40 degrees, and giving it only sufficient water to keep the soil barely moist. A month or two of this treatment will not injure the plant.

Roses, however, are not good house plants.

Hamilton.

W. HUNT.

Whale Oil Soap.

1269. SIR,—Could you let me know where to write for whale oil soap for spraying, and at what price it can be obtained, and oblige.

Yours respectfully,

Olinda.

M. G. BRUNER.

Mr. J. J. Ward, of Consecon, Ont., manufactures whale oil soap, and would be glad to quote prices. Mr. G. E. Fisher, of Bur-

lington, is Provincial Inspector of San Jose Scale, and will be glad to correspond with you as to the best means of applying the soap, and the proper time for the work.

Boxes for Apples.

1270. SIR,—I understand that an increasing number of fruit growers in Ontario and Nova Scotia are shipping their apples in boxes. As you are doubtless aware they have always been sold in boxes on the Pacific Coast. We think we have two good reasons for preferring the box to the barrel. The first is: families in towns and cities can often afford to buy a box who could not afford to buy a barrel, and this increases consumption. The second is that a larger quantity of fruit can be put in the space, thus increasing the carrying capacity, an important item. Up to the present time everybody has made a box to suit himself, so that we find boxes of apples containing from thirty-four to fifty pounds of fruit. Our Association asked the Hon. Minister of Agriculture to pass an Act legalizing a certain sized box, but so far no action has been taken. We are anxious to have a legal box, and our Association recommends the same size box that is in use in Oregon and Washington, for the reason that our fruit comes in direct competition with theirs in the Manitoba and Northwest Markets, and as those states are now shipping to Great Britain and Germany, no doubt they will come in competition with your eastern fruit, and it will avoid confusion if we can have uniformity of package.

I am writing the Association in Quebec and Nova Scotia to the same effect, and asking their co-operation in getting the Dominion Government to take action in the matter.

Hoping to have the active support of your Association. Yours truly,

N. J. BRANDRITH,
Sec. B. C. F. G, Ass'n

Box 452,
New Westminster, B. C.

Uniform packages for our fruit is one of the hobbies of our Ontario fruit growers, and we are pleased to find our friends in British Columbia aiming for the same object.

A few years ago when we began using a box for apples, we adopted a size measuring two cubic feet, viz., 24 x 12 x 12 inches outside, but recently changed this slightly to make them pack in the car to greater advantage, and adopted a box 10½ in. high, by 11½ in. wide by 22 in. long, outside measurement. This corresponds very closely with the sizes shipped from New York City, and offered at fifteen cents each by Frank B. Read, 216 Washington street, New York City, which he claims to be the *regulation*

size, and which measures *inside* 9¾ in. high 10¾ in. wide by 20¾ in. long. These are made with ¾ inch ends and ⅜ inch sides.

But before ordering these wooden cases we would recommend our friend to write to the Dyment Baker Co., London, for samples of their new case, which promises to take the first place for fancy, tender fruits in all markets.

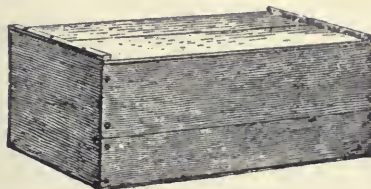


FIG. 2233. THE AMERICAN APPLE BOX.

The outside measurement of this package is 10¾ in. high by 12½ in. wide by 21½ in. long, and consists of a crate, containing four trays of fillers of sizes to fit the grade of fruit which is being packed.

New Uniform Fruit Packages.

1271. SIR,—Will you please write me a few words and tell me will every one have to put away the berry boxes we have at present, because they don't hold the full Imperial quart?

I have the latest kind that everyone has up till now.

Yours very truly,

Olinda.

ROBERT G. ANDERSON.

The Act providing for the use of uniform baskets for fruit will in no way interfere with the use by shippers of the baskets they have on hand, but it provided that any baskets in use not in conformity with the specified size, be branded with the number of quarts which they do contain.

There is no change in the berry box; in Canada we have always used the well known strawberry box, containing a Winchester quart, or 4/5 of an Imperial quart, and this is now legalized by the Act.

My Garden.

1272. My garden has done better this year. Cucumbers, tomatoes, grapes and potatoes have done particularly well, especially the last, although not generally good in the neighborhood. I may also say that I had a few peaches this year,

for the first, on Early Crawford, and they were large in size and highly flavored. I have had the tree some years. I also saw a peach tree in St. Mary's with a good crop, but not very large. I mention this, as the opinion is growing that peaches can be grown further north than usually grown. I think a few may be grown here most seasons for home use, but not enough for sale.

What is the cheapest way to supply potash to the land. I have got along so far with wood ashes, but as coal is being more and more used

they are getting scarcer? I see potash is advertised in the journal, but it is in New York, and no agent is mentioned for Canada.

Listowel.

A. J. COLLINS

Wood ashes can be had in car lots from Rathbun Co., Deseronto, at a very small cost. Would fertilizer dealers respond concerning potash.

Open Letters.

San Jose Scale Remedies.

SIR,—The fruit growers of Ontario are becoming more and more interested in the San Jose Scale, and the question of how to extinguish it has become one of great importance to many who at first looked upon the agitation with indifference. In the original centers of infestation the San Jose Scale has multiplied and spread during the past season more than ever before. There is no longer lack of evidence of its destructiveness, for many fruit trees have been killed by it at these old infested points. The results from the remedies used last spring when applied carefully and according to the instructions, are very satisfactory and encouraging, and the Minister of Agriculture for Ontario will again supply spraying material (whale oil soap and crude petroleum), for the destruction of the San Jose Scale, at one-half its cost laid down.

Parties wishing to take advantage of this opportunity may do so by communicating with me on or before January 30th, 1902, after which date we will not guarantee to fill orders.

GEORGE E. FISHER, Inspector,

Dec. 16th, 1901.

Freeman, Ontario.

Great Britain's Imports of Food Products.

SIR,—In looking over the proceedings of the 10th annual meeting of the American Warehousemen's Association held in St. Louis, Mo. October 17, 18 and 19th, 1900, I find that during the year ending June 30th 1900, England consumed \$800,000,000 in food stuffs or \$1,200,000 daily. Of this amount \$650,000,000 was the value of imported products, the refrigerated imports amounting to about \$400,000,000 made up as follows: \$135,000,000 in dressed meats; \$30,000,000 in cheese; \$80,000,000 in butter; \$30,000,000 in eggs; \$30,000,000 in poultry; \$25,000,000 in frozen fish; \$35,000,000 in fruit and \$40,000,000 in other perishable food stuffs. In addition to this the consumption of foodstuffs in England is said to increase about \$25,000,000 yearly.

The above figures show what this market is worth and surely such a market is worth contending for. We cannot utilize it to advantage without a strictly reliable cold storage service and we should not desist till this is secured.

Freeman, Dec. 10th, 1901.

G. E. FISHER.

Nova Scotia Awards.

SIR,—I have just received from W. J. Buchanan, director-general of the Pan-American Exposition, the official list of awards to growers of Nova Scotia fruit exhibited by me there, which please publish:

The Nova Scotia Fruit Growers' Association for general exhibit of fruits—one gold medal.

F. Arthur Starr, Cornwallis, for display of 85 varieties of apples and 20 varieties pears—one gold medal.

Herbert Johnson, Wolfville, 20 varieties and 2 barrels apples—one silver medal.

Mrs. Olivia Johnson, Wolfville—one bronze medal.

I. Elliott Smith, Greenwich—one bronze medal.

C. M. Vaughn, Wolfville—one bronze medal.

Saxby Blair, Government Farm, Nappan, fruits in acids—one bronze medal.

Mrs. Ethel McKeen, Gay's River, Halifax—diploma.

James Elderskin, Wolfville—diploma.

Byron Chesley, Clarence, Annapolis—diploma.

Byron Chesley for fruits in acids—diploma.

W. C. Archibald, Wolfville—diploma.

The awards for vegetables have not yet been received. Arriving as we did in the last month of the Exposition, and laboring under great disadvantage in exhibiting, the awards are most satisfactory and should be a cause of pride to every Nova Scotian.

Wolfville, Dec. 9, 1901.

J. W. BIGELOW.

Western New York Fruit Growers.

SIR,—Our 47th annual meeting in this city Jan. 22nd and 23rd, 1902.

Program will include paper and talk from some of the leading scientific and practical horticulturists in America.

The discussion of questions will be a more prominent feature than ever before, and the program will be exceptionally fine.

It is worth any man's while, if at all interested in fruit, to attend this meeting and rub up again st over 800 of the cream of fruit-growers in New York State.

I will mail program, soon as ready, to all enquirers.

Yours, etc.,

Rochester, N. Y.

JOHN HALL.

Rose Exhibit at the Pan.

SIR,—Owing to an oversight in connection with the awards made in the Floriculture Department of the Pan-American Exposition, the continuous and beautiful display of roses and cut flowers made by the firm of Morris, Stone & Wellington did not receive recognition by the Judges in their report. This error was not intentional, and it is to be regretted that it cannot be officially corrected. In justice to this firm, and also to Mr. Cameron, at Queen Victoria Park, Niagara Falls,

I desire to say that the floral contributions of these gentlemen, continuing almost throughout the entire season, formed one of the most pleasing and prominent features of the Canadian display in the horticulture department. In fact in this respect we stood quite in the front rank of any of the other exhibits, and the credit for this is largely due to our friends as above mentioned.

Yours very truly,

St. Catharines.

WM. H. BUNTING.

A FLORAL LOVE STORY.

Fair Marigold, a maiden fair; Sweet William was
her lover,
Their path was twined with bittersweet; it did not
run through clover;
The lady's tresses raven were, her cheeks a lovely
rose;
She wore fine ladyslippers to warm her small pink
toes.
Her poppy was an elder, who had a mint of gold—
An awful old snapdragon to make one's blood run
cold!
His temper was like sour grass; his daughter's
heart he wrung
With words both fierce and bitter—he had an
adder's tongue!
The lover's hair was like the flax, of pure Ger-
manic type,
He wore a Dutchman's breeches; he smoked a
Dutchman's pipe.
He sent marshmallows by the pound and choicest
wintergreen;
She painted him forget-me-nots, the bluest ever
seen!
He couldn't serenade her with the nightshade lark.
For every thyme he tried it her father's dogwood
bark.
And so he set a certain day to meet at four o'clock;

Her face was pale as snowdrops, e'en whiter than
her frock.
The lover vowed he'd pine and die if she should
say him no,
And then he kissed her beneath the mistletoe.
"My love will live forever, my sweet; will you
be true?
Give me a little heartease, say only, 'I love yew.'"
She faltered that for him alone she'd orange
blossoms wear.
Then swayed like supple willow and tore her
maidenhair;
For, madder than a hornet, before them stood her
pop,
Who swore he'd cane the fellow until he made
him hop!
Oh! quickly rose Mary. She cried: "You'll rue
the day.
Most cruel father. Haste, my dear and lettuce
flee away!"
But that inhuman parent so plied the birch rod
there.
He settled all flirtation between that hapless pair.
The youth a monastery sought and donned a black
monkshood;
The maid ate poison ivy and died within a wood.

—N. Y. Tribune.

Important Notices.

Address money letters, subscriptions and business letters of all kinds to Secretary of The Ontario Fruit Growers' Association, Parliament Buildings, Toronto.

Copy intended for publication in Canadian Horticulturist should be addressed as usual to Linus Woolverton, Grimsby, Ont.

All postoffice orders, cheques, postal notes, etc., should be henceforth made payable to Mr. G. C. Creelman, Toronto.

PRIZE COLLECTION OF VEGETABLES FROM PINE GROVE GARDENS, ORILLIA,

AT EAST SIMCOE HORTICULTURAL SOCIETY'S EXHIBITION, 1900.



FIG. 2234.

FOR 11 years in succession the collection of vegetables from Pine Grove Garden has been awarded 1st prize and diploma at the East Simcoe Horticultural Society's Fall Exhibition. In 1900, in addition to the collection of vegetables, 33 other prizes were awarded to vegetables from these gardens, three of them being for collections, viz., capscums, tomatoes and cabbages, and 30 for other entries.

The gardens consist of 25 acres, situated in the west ward of Orillia; one-third of the land is of very light sand, one-third of clay loam and one-third of deep black muck. When 15 years ago it came into possession of the present owner, Mr. McKinnell, it appeared a most unlikely spot for a garden. During the first year or two, the seed was

blown out of the ground in one place, men and horses mired in another, and hundreds of tons of boulders had to be buried or otherwise got rid of from another. By filling up the sand and gravel pits, thoroughly draining the swamp (once a menace to the health of the neighbors) by extensive cultivation and fertilizing, aided by a good system of irrigation, it has been converted into one of the most productive 25 acres in Canada, shipping many car loads of the finest vegetables

annually to the lumbermen and miners of the northern districts of Ontario. Special attention is given to the following crops, viz.: Tomatoes, onions, celery and strawberries; of the last named 10,000 quarts were sold during the last season.



FIG. 2235.

GLADIOLI

WRITE FOR CATALOGUE.

Groff's "World's Best" Hybrid Seedlings.
Groff's Pan-American Exposition Collection.

Winners of the gold medal and 13 first prizes at the Pan-American Exposition, in competition with the leading American growers. LEMOINE, NARCISSUS, CHILDSI, GANDAVENSIS, and all the leading strains in great variety.

JOHN A. CAMPBELL, Simcoe, Ont.



FIG. 2236. CAMPBELL'S EARLY GRAPE.

THE CANADIAN HORTICULTURIST

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* * FEBRUARY * *

CAMPBELL'S EARLY GRAPE.

LAST summer we fruited this grape for the first time, and our acquaintance with it was most favorable. Its fine size, its earliness and good quality seem to combine to make it the most promising of our commercial varieties. We do not wish to commend the grape too highly, for one season's acquaintance is not sufficient to enable one to speak with authority; but it certainly is an earlier and a better grape than the Concord, which is now the leading commercial variety in North America. We have still to study the vigor of the vine and its productiveness, and if, in these respects, it equals the Concord, then we can recommend the grape without reserve.

The name perpetuates the memory of the venerable G. H. Campbell, of Ohio, who counted this one of his first productions. He had been experimenting fifteen years, endeavoring to produce a grape that should

have the merits and not the faults of the Concord, and this was the result of different crosses with Hartford, Concord, Moore's Early, and Muscat Hamburg, selecting the hardiest and healthiest vines.

The grape ripens with Moore's Early, its bunch is large and shouldered; the berries large, often one inch in diameter, black in color, with thick blue bloom; flavor rich and sweet without foxiness; and it should be valuable for distant shipments.

Campbell's Early was first sent out in 1896, so that it has not yet become very widely known, but we believe that we have spoken of its merits in moderate terms. We are placing it on the list for distribution in the spring of 1902, and we hope that we shall soon have reports of its behavior in various parts of Ontario, especially regarding its ability to resist cold in our northern sections.

NOTES AND COMMENTS.

Aphis and Rose Thrip.—At our Cobourg meeting a paper was read by Mr. Jackson, of Port Hope, on the Rose, and in the discussion he advised spraying the foliage with a strong solution of whale oil soap and extract of tobacco, using 20 parts of the former to one of the latter. This, he said, would rid the bushes of the pests. The extract of tobacco can be purchased in pint bottles at drug stores.

Deep Rooted Trees are advocated by Richards, of Texas, as a means of withstanding the effects of drouth. He claims that trees should be so pruned and trained that they send down their roots deep into the subsoil, and argues that the deeper rooted they are, the healthier, the longer lived and the more productive they will average. We shall be glad of the views of our readers who have been observant of these conditions. In our own opinion such treatment would not be altogether advantageous, for the nearer the surface the roots lie, the more easily can they be fed with surface manuring.

A Fruit Grader to separate our various fruits into uniform sizes has become a necessity of the age. It is impossible to grade by the eye to such exactness as is necessary. This was plainly shown by the reports of inspectors at Montreal, who, having examined fruit so graded, warned the packers that they had found in their packages three specimens out of ten that were below the grade size. This variation may not have been more than $\frac{1}{8}$ of an inch, and not noticeable to the best educated eye, and yet was sufficient to subject the shipper to a fine and to the publication of his name as that of a person guilty of fraud.

The expense of buying a grader is therefore one of the necessities of the man who desires to ship graded fruit. Fortunately such a machine, invented here in Ontario by Mr. A. H. Pettit, of Grimsby, was shown at our Cobourg meeting last December, and we hope it will soon be placed upon the market.

Nitrification.—Wis. Bul. 85 gives results of some investigations of the variations in the amount of Nitric nitrogen and soluble salts in the soil under different conditions of cropping and culture, concerning the amount required for healthy growth, etc.

It was found that soil stirred once in two weeks was left, after ninety-one days, with 53 lbs. of Nitric nitrogen per million of dry soil, and that stirred once a week left the same quantity of soil with 98 lbs. of Nitric nitrogen. It was found that the largest amount was developed during an interval of 258 days by stirring to a depth of three inches; a less or greater depth not giving as good results.

Large vs. Small Fruit Farms.—The question of the over production of fruit is considered anew year after year, and the occasional gluts in our markets and the low prices returned us often give great reason for anxiety lest we soon reach the day when prices do not give any surplus over the cost of production. And this day will not be very far distant if we continue to grow scrubs, for in these days a glut of trash is easy to bring about; but a glut of large sized, highly graded fruit, with fine color and first quality, has never yet occurred. Those immense apple orchards of the Western States are unwieldy and the results unsatisfactory. Mr. G. T.

Powell, of New York State, states that the great Judge Wellhouse orchards, of Missouri, have yielded an average of but fifty bushels of apples per acre for twenty-two years and this is one of the best cultivated of the mammoth orchards of the West. Some of these big orchards have never been pruned or cultivated since they were set. Such orchards will never cause a glut of fine apples in any market, and the fact of their being planted need never make us anxious over the future of our apple markets.

The secret of making money out of apples in the future is to produce something superior to the product of such orchards. A small orchard, no larger in size than can be cultivated, pruned, fertilized and the product handled and packed in the best manner, is the ideal investment. The markets of the world are opening up for choice stock in a wonderful way, and the secret of success lies in supplying this growing demand.

Cleaning the bark of trees, before spraying for scab or insects, is most important, and a job neglected by most fruit growers. To have healthy, vigorous trees, the bark must be kept in a healthy condition, and how can it be so if covered with dead bark, and with lice which suck away the strength of the trees? Where San Jose scale prevails this work is doubly important; and not only must the trunk be scraped in such a case, but the tree subjected to a thorough cutting out of all superfluous wood, that the spray be not wasted on useless parts. To be successful one must have an effective pump, and the operator must be suitably dressed.

Trolley Lines for Fruit Growers.—Now that the electric roads are being built throughout so many of the best sections of our province, it is of interest to know that a combined road wagon and railway truck has been invented, which promises to be a great saving of expense to the farmer and the

fruit grower. The frequent loading and unloading of baskets, necessitated in the transfer from packing house to express car, and from express car to consignee, not only takes much time but also causes injury to the fruit. A truck that could be loaded at the packing house, carried bodily on board the trolley and run off directly to the consignee, without handling the goods, is therefore a most valuable invention.

A package for fancy fruit has been invented by Mr. Wm. Wilson, of London, Ontario, which, we believe, will be very popular. It was this package, then not quite perfected, which Mr. M. Pettit used last November in shipping his Kieffer pears to Glasgow. Our only criticism of the package was that a different size of case was needed to accompany the different sized fruits, thus making storage more expensive. Mr. Baker, of the firm manufacturing the case, writes under date of Dec. 5th, as follows:

"We can now furnish a package that will fit any sized fruit and pack into a compact square. Twenty-four packages fill the space of one cubic ton exactly, making it easy for a shipper to check his ocean freight. So far as I know, or can see, we have now a perfect grader and a perfect package."

We are much pleased with the prospect of having one exterior size of case for all fruits, and certainly it will simplify the transportation problem if a case $22 \times 10\frac{1}{2} \times 12\frac{1}{2}$ in. will contain all sizes of such fruits as apples, pears, peaches, plums, berries and grapes.

Decease of Mr. W. A. Whitney.—We desire to place on record in this journal the deep regret with which we have received the news of the sudden death of our director for Stormont and Cornwall. We also wish to convey to the bereaved family the sincere sympathy of the directors and members of the Ontario Fruit Growers' Association, of which he has always been an interested member. Mr. Whitney died on the evening

of Jan. 17th, from heart failure, the result of over-exertion. He was born in Grenville County in 1834, was twenty-five years head master of the Iroquois High School, and for several years classical master of the Morrisburg Collegiate Institute. He had been publishing the St. Lawrence News for about four years.

Rev. Robt. Hamilton, of Grenville, Que., of the Horticultural staff of the Paris and Glasgow exhibitions, called at our office a few days ago. He states that the Glasgow Exhibition was a financial success; the expenditure was limited to exhibits and very little spent on exterior show. No doubt the immense sums spent on ornamentation of the exterior of the buildings and of the grounds at the Pan-American was the secret of its financial failure.

The Great World's Exposition at St. Louis in 1903.—On the 20th of December last, the first spadeful of earth was lifted by President Francis, and deposited in a wagon drawn by four white horses; and this was made the occasion of several most enthusiastic addresses. It is expected that the United States Government will spend at least one and a half millions upon its exhibit, which will be much in excess of that spent upon its exhibit at the Chicago Exposition.

Pomology.—Prof. F. A. Waugh, of Vermont, criticises Prof. Bailey's statement that Fruit Growing and Pomology are synonymous terms, because the latter is a science, the former an art. Pomology is the study of fruits and their characteristics, and of the trees and their habits, and a systematic pursuit of it, in his opinion, receives altogether too little attention these days. "In particular," he says, "I think attention needs to be called to the lack of recent work in descriptive pomology. The other day I received a report from a leading horticultural

society, sustained by a great state on the other side of the Mississippi river. In this report there were given a large number of descriptions of varieties of fruits. The great majority of those descriptions were taken bodily from Downing's "Fruits and Fruit Trees." Think of it! Those descriptions were written fifty years ago or more, from specimens picked in the Eastern or New England States, and yet they are the only ones which an enterprising secretary of a strong horticultural society can find when he goes pirating about for the wherewithal to make up his reports. In this same report there was hardly an original description given."

The "Fruits of Ontario," a work undertaken under the direction of the Board of Control of our Fruit Stations may be slow of progress, but fortunately will escape this severe censure. One merit, at least, it will possess, that it describes fruit and fruit trees as they grow in Ontario and not as Downing found them in some distant section of North America, fifty years ago.

New Buildings at the Industrial are now assured, since a by-law has been passed by the citizens of Toronto granting \$133,000 for new buildings. This will make the Industrial Fair of still greater importance to the province, and we should see to it that better provision be included for our fruit exhibits. We have two representatives on the Board, viz., Mr. A. H. Pettit and Mr. W. E. Wellington, and no doubt that they will see that our interests are not neglected.

The British Apple Market in 1901 has given satisfactory returns to shippers, though not equalling the extravagant expectations of those who judged the world's crop by the shortness of that in their own immediate locality.

The imports to Liverpool to Dec. 31st, 1901 amounted to 252,000 barrels, just about

half the quantity of American apples sent over in 1900. The Baldwins have been chiefly from Canada and Maine, very few New York State Baldwins having been sent forward. The finest brought 22 shillings a barrel, the Canadians being always slightly ahead in price.

Canadian Snow apples are much valued when they arrive clean, but owing to black scab, they are looked upon with much suspicion. Could we only succeed in growing them clean, and get them carried cool enough to retain their crisp flesh, there would be good money in them.

The Newtown Pippin, known also as the Albermarle, has still the preference in Great Britain where it can be landed free of scab, indeed some buyers seem to think the scab only a proof that it is genuine. California Newtowns are being forwarded in greatly increased quantities; more than 50,000 bushel cases arriving in Liverpool in the month of December 1901, but in quality they are far behind those grown in the East, the climate not being suitable for producing a juicy crisp apple of high quality, and good color. In consequence, it is not surprising that prices declined for California Newtowns from \$3.00 to \$1.75 per bushel box.

The Sour Cherry is arranged in four groups by Powell, Delaware Station, viz.: (1) Montmorency, (2) Morello, (3) Bruseler Braune, (4) Vladimir. He recommends for trial, of the Montmorency group; June Amarelle, King, Lancaster, Sklanka and Weir No. 2: of the Morello group: Double Natte, Ostheim, Wragg, Minnesota and Koslov Morrello: of the Bruseler Braune group; Besserabian and Bruseler Braune.

The Keiffer.—A writer in the Rural New York champions this much abused variety, claiming that if picked in September and properly ripened it is a very good pear to eat, and free from grit or woodiness; but

when left on the tree until the last of October it changes entirely and becomes gritty at the core.

Powell, of Delaware Station, has been experimenting as to the self pollenisation of this variety, and concludes that it is almost self sterile. He finds that, where cross-fertilized, the fruit develops much more rapidly and at the end of two weeks is twice the size of self-fertilized fruit. He advises planting every third row in an orchard of some other variety than Keiffer and suggests such varieties as Howell, Manning, Duchess and Bartlett.

An Agricultural University.—From comparatively small beginnings the Ontario Agricultural College at Guelph has developed year after year until it has reached the front rank among institutions of its kind on the American continent.

The munificence of the late W. H. Massey in furnishing the means for the erection of a library and Convocation Hall, and more especially that of Sir W. McDonald, in his gift of \$100,000, or more, for the erection of buildings in which special training will be given in Nature study and Domestic Science, mark a new era in its development, during which it may command a position far in advance of that which it now occupies.

Dr. Mills is now visiting other institutions for the purpose of gleaning from their experience every thing that will help toward making this undertaking a magnificent success, and in carrying out these plans for the ultimate good of the farmers and the fruit growers of Ontario.

This is but a part of a larger plan for the stimulation of education in Domestic Science and Agriculture, which has been outlined in brief as follows:

Part 1 of the plan is intended to give object lessons of improvements in education from the consolidation of five, six or more small rural schools into one central graded

school, with a school garden and a manual training room as part of the equipment. It is proposed to offer financial assistance to one locality in Ontario, and one locality in each of the Provinces of Quebec, New Brunswick, Nova Scotia, and Prince Edward Island, to promote this.

Part 2 of the plan is for the purpose of giving object lessons of the value of school gardens and nature studies as a part of general education at individual rural schools, to be begun by means of a travelling instructor until a considerable number of suitable trained and qualified teachers are available. It is proposed to offer financial assistance to one group of ten or fewer schools in one locality in the various Provinces, to this end.

Progress in agricultural education would be made by starting evening continuation classes in the rural districts in connection with those groups of schools, or in connection with the consolidated schools.

Part 3 of the plan provides short courses of instruction and training for teachers for rural schools who desire to qualify themselves in those newer subjects and methods of education, at the Ontario Agriculture College at Guelph, in a special building.

If provision should be made for a class of about 30 teachers at each short course, it is hoped that the Government would arrange to enable approved teachers in rural schools to take the short course, without loss of situation or loss of salary. For the first year it is proposed to make an allowance for the teachers' travelling expenses to the college, and an allowance of \$25 to help in meeting the expenses of board and lodging, to every approved teacher who has taken a full course satisfactory.

It is proposed to offer to the province at the Agricultural College at Guelph, a residence building to accommodate not less than 100 female students.

It was suggested that suitable courses

would include instruction in dairying, poultry-keeping, bee-keeping, fruit-growing and general gardening; preparation and serving of foods, sewing, dressmaking, and the simpler forms of household art and decoration, care, and cleansing of rooms, etc.

Lord Roberts' Flower.—The Fruit Trade News, of London, England, proposes the wearing of the Ixia by patriotic citizens on Pretoria Day in honor of Lord Roberts' victorious entry into that stronghold. Its green color, it being a native of the veldt, its blooming at the period above mentioned,



FIG. 2237. LORD ROBERTS AND HIS FLOWER.

seem to combine in rendering the suggestion an appropriate one. *Ixia viridiflora* was found by Schomberg in California, who stated that it bore a cluster of green flowers something like a green head of wheat. This *Ixia* is very pretty for table decorations and may be easily grown from corms planted in pots, or out doors in early spring.

FRUIT GROWERS AT ROCHESTER—I.

BEING invited to speak on the export of tender fruits, the writer attended the annual meeting of the Western New York Horticultural Society, which was first organized forty-seven years ago, five years before our own. The division which arose last year between fruit growers and nurserymen over the proposition to seek legislation for compelling fumigation of nursery stock has been agreed to by both interests, and, in spite of the snow blockade, a large number of the best fruit growers were present. Among those representing Ontario were Messrs. E. D. Smith, Winona; Joseph Tweedle, Winona; and E. Morris, of Fonthill.

Dwarf Apple Trees.—Prof. Beach, of Geneva Experimental Station, advocated training apple trees in a different manner in view of the necessity of fumigation and spraying, and Dwarfs were advocated as one way of meeting the conditions. These are made using the Doucin, or the still slower growing French Paradise stock. Every variety of apple succeeds on Doucin stock, and bears early, say in five years after planting; while on Paradise it may bear still earlier. Planted 8 x 8 or 10 x 10 one may set 400 or 500 trees per acre, and thus to a certain extent, they will make up in number what they lack in size. These little trees will not of course live to the age of standards, and their usefulness will be over in 20 or 30 years, but it is suggested that possibly these disadvantages will be counterbalanced by ease in reaching them from the ground for pruning, spraying, thinning and fruit gathering, while, if the apples are blown down, they will not be so liable to injury by winds. The planting of such trees is on the increase in England where the Dwarf is growing in favor.

The Bismarck apple was spoken of as a very early bearer of very fine fruit, for even on standard it has been found bearing fruit at the age of two years; surely it will be worth while to try this Bismarck apple at all fruit stations.

New Ideas in Strawberry Culture was the subject of a vigorous address by R. M. Kellog, of Three Rivers, Michigan. The first runner plants, he said, were the most vigorous and productive, and he had made it a rule to use only these. In this way he had succeeded in raising plants of the highest value for productiveness.

Mr. Kellog has promised to give us a copy of his address for a future number of journal so we will omit farther note of it here. "What is the berry you sell the most plants of?" I asked him as we were seated at dinner. "Well," he said, "during the past season the Brandywine; it is an excellent shipper and very productive."

"I think," said Mr. E. D. Smith, of Winona, "that the Williams is the most popular market variety. It is also an excellent shipping variety, and in Ontario it is in far greater demand than Brandywine."

"What about the Clyde," I asked; and here the doctors seemed to disagree. Smith said it was too soft to buy for re-shipping; Kellog said it was a very profitable berry grown on heavy soil, but not profitable on light sand. "There is one variety named after yourself," said Kellog, "the Woolverton, that is a wonderfully fine berry. It deserves to be much more widely grown than it is, for it is firm, of large size, and productive, in many respects it is an ideal berry."

Of the new varieties Mr. Kellog mentioned Aroma as being very promising.

The Cherry Fruit Worm was characterized

by Mr. G. H. Powell, of Briarcliff Manor, N. Y., as the worst enemy of the sour cherry. So serious had the pest proved itself in some sections in New York state, that the cultivation of the Montmorency and Morello cherries was in danger of ruin. The worst feature was that no certain remedy had yet been discovered by our scientists.

The Cherry Rot was also a most serious obstacle in the way of the cherry grower. Powell had checked it by the use of pure sulphate of copper, 2 ounces in 40 gallons of water without lime, so as to leave the fruit clean for market. "Did not this injure the foliage asked a fruit grower. "No," said Mr. Powell, "I used as much as three, and even four, ounces to forty gallons of water, applying it every day, and even this did not spot the foliage." "How many times did you apply it," asked another. "I applied it" said he, "about ten times in all."

Prof. Beach, of Geneva Experiment Station, said he had used Bordeaux on his cherries for Brown rot, directly after the fall of the bloom, but could not see sufficient benefit to really pay for his work. He warned fruit growers to be careful in the use of copper sulphate "for it will certainly spot the foliage, if made too strong."

Prof. Stewart, of Geneva, said Brown rot fungus was a more serious enemy than was commonly supposed. Its attacks were not by any means confined to the fruit, but it also affected the twigs, and in wet seasons often causes their death. The cherry, the plum and the apricot were all subject to it, in the case of the two latter it often killed them back a foot, and in peach trees even two feet. This fungus, Stewart declared, started its growth much earlier in the season than most people supposed, and continued its ravages all the season through, both on the fruit and the twigs, and therefore it was wise to begin treatment early.

THE QUEBEC FRUIT GROWERS.

THE Ninth Annual Meeting of the Pomological and Fruit Growing Society of the Province of Quebec was held on the 18th and 19th of December, at Coaticook, situated among the hills, or high rolling land, of the Eastern Township, just east of Sherbrooke.

The meetings were well attended by a flourishing class of farmers, who, although their chief industry is dairying, took a lively interest in the subject brought up and were eager with questions and entered with enthusiasm into the discussions.

It was certainly a surprise to some of us to see the fine collection of exceptionally high colored fruit that was shown on the tables. There were about 65 plates;—8 or 10 plates

were Fameuse or Fameuse type of beautiful color; Ben Davis was in evidence, but specimens even poor in quality, size and color, and it is to be hoped the coming fruit grower in that section will give it the go-bye in favor of fruit of higher quality which they are evidently capable of producing.

The Russians were not as much in evidence as one would suppose in that section, only three or four plates being shown.

I was very much surprised to see a plate of Baldwins said to be grown in the vicinity. To see such a fine collection, 125 miles east of Montreal, leads us to wonder where is the limit of the fruit producing area of the Dominion. In all probability, if this fruit belt was to be followed through New Bruns-

wick and on to Nova Scotia, we would find one unbroken chain from Lake Huron on the west to the shores of the Atlantic on the east.

Mr. J. M. Fisk, of Abbotsford, gave an able address on varieties of apples to grow for export and the discussion that followed gave Fameuse, McIntosh, Winter St. Lawrence and Rochelle first place. Russian are not in demand; Windsor Chief and Lawver promised well, Blue Pearmain is good, but such a shy bearer that it is not considered profitable.

The question of packages also came up and the box is generally considered the most satisfactory when packing in barrels it was recommended to use paper at the head and to use excelsior for pressing, to avoid bruising the fruit.

W. Craig Jr., Abbotsford, showed some specimens of cranberries grown on his farm and gave a very interesting address on the very desirable fruit. He says any waste land of mucky nature that can be flooded during the winter with a foot or two of water and kept flooded during early spring is all that is required: with such land it is only necessary to cover with an inch or two of sand to keep weeds in check and set the plants a foot or so apart, flooding in the fall and draining off in May; the plot will take care of itself and be a paying investment in three or four years from the time the plants were set.

G. Raymond, La Trappe, gave an address in French on starting an orchard which led to a lively discussion in both languages.

Mr. Raymond is a Horticulturist and nurseryman at Oka farm, a short description of which might be interesting, showing the possibilities of the Province and of a farm well managed.

Lying to the north of the Lake of Two Mountains on the Ottawa river is the Trappist Monastery Agricultural College and farm. This farm comprises about 1000 acres. The

fine thoroughbred stock of cattle, horses, sheep and swine of many breeds delight the eye of the stock raiser.

On the farm they have about 200 cows, 250 pigs, a large number of horses, a cheese factory where the famous Oka cheese is manufactured, which sells at 25 cents per pound wholesale; about 200 acres of orchard, vineyard and nursery; large wine presses that have made Les Trappistes famous in domestic wines.

The nurseries and orchards are also a large source of revenue. The Flemish Beauty pear grows with them to the highest perfection.

The rules of the order of La Trappe Monks are very strict and only male visitors are admitted into the monastery. The Monks are compelled to rise at 2 a. m. for prayer and meditation. One meal a day only, as a rule, is permitted and there is entire abstinence from meat, fish, eggs or butter; a spare quantity of bread, vegetables and milk only being allowed. It is most interesting to watch the Monks in the field performing their silent labor; everything is done by rule and whatever the occupation, it must be suspended when the bell sounds for the religious exercises.

Besides the forty monks or so that labor in the fields from five to six hours each day, there are employed about thirty regular farm hands who carry on the work that makes this farm a pattern for all and a source of profit to the owners.

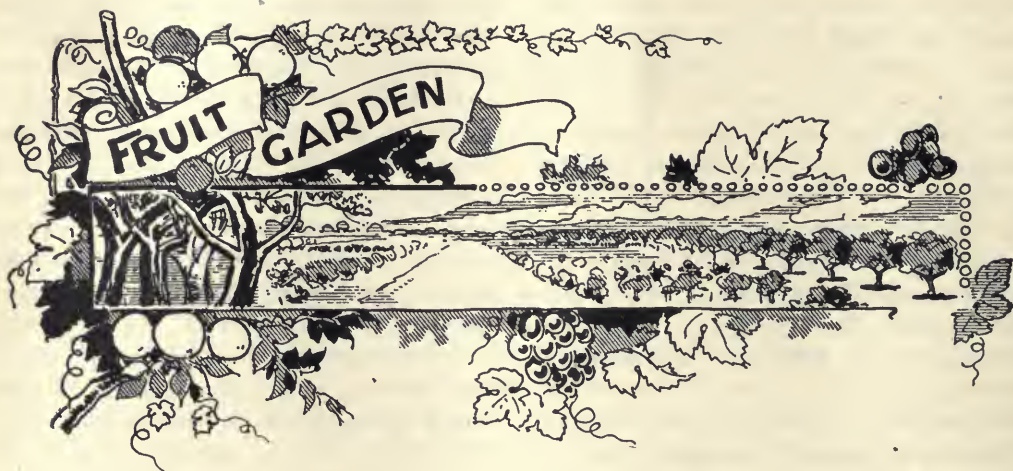
A plant distribution of two plums (imported), one peony, and one rose will be given to each member in the spring of 1902, together with the annual report.

Mr. T. L. Kenney, South Hero, Vt., Prof. Waugh and Prof. McCoun addressed the meeting and helped along the various discussions in an able manner.

The Association is to hold its next summer meeting at Aylmer, Quebec.

Maitland.

HAROLD JONES.



PRUNING.

CRITICISMS BY THE EDITOR.

PROF. Bailey gives eight reasons for pruning, all of which in our opinion may be included in one object, viz.:
To so direct the growth of the tree that the best results in fruit bearing shall be attained.

This work may be done at any time, but the vigor of the tree is best maintained by pruning while the wood is dormant. To keep the tree in condition for giving the best results attention is needed, not only during the season of rest, but also during that of growth, in order that strength may not be wasted in producing a large amount of wood which must afterwards be sacrificed.

Tree Butchery.—It is a mistake, very commonly made, to neglect an apple orchard during the first ten or fifteen years of its growth, and all at once to set to work with axe and saw to attempt to prune the trees into shape. Butchering is the only word applicable to such a process. Those trees can never fully recover from the shock received, and the huge wounds will in time be the means of introducing decay into the very heart of the tree, diminishing

its vitality and shortening its life. We have at Maplehurst an old orchard which in its early years was treated in this barbarous fashion, and which has ever since served as an object lesson to the writer. The pruning was always done by cutting away the great branches of the trunk until those remaining were far up and almost out of reach. In one case I remember trying in vain with a ladder thirty feet long to gather the finest apples on a Golden Sweet tree, and after reaching and climbing, I had to shake down most of the golden beauties only to be smashed and bruised so that they were rendered wholly unfit for sale. Many of these old trees are hollow trunked, affording fine hiding places for squirrels, but in the end they toppled over with their own weight. Another evil was the great number of sprouts which sprang up about these great cuts, an effort of Dame Nature to make up for the sudden loss of limbs. Especially was this trouble apparent in cases where my grandfather, in his efforts to open out the head of the tree to the rays of the sun, had cut out the whole top. The



FIG. 2238.

tree with its natural inclination to upward growth, sent up numbers of strong vigorous shoots, presenting a puzzling problem for the pruner to solve.

Fig. 2238 shows a tree improperly pruned, partially illustrating our remarks under this head.

Another very common error in the pruning of apple trees is the sawing of a limb so as to leave a stump, as in Fig. 2239. Nature may try as she will, but she cannot heal such a wound; her only way is to withdraw nourishment from the useless stub until it dies and finally breaks off, only to leave a hole into the tree for the entrance of decay. The correct method is to cut close to the main stem as shown in Fig. 2240 where D points out a wound now about healed over, and C and E recent cuts properly made.

Where large cuts must be made, in con-



FIG. 2239.

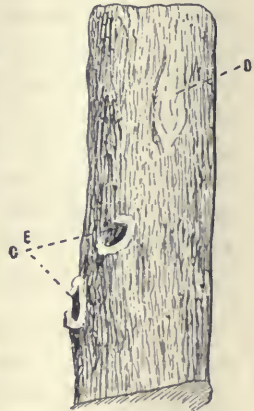


FIG. 2240.

sequence of long neglect, the wounds should always be painted or varnished over so as to exclude decay, until nature has done her best to heal them over. But in our opinion the fruit grower who really understands the art as well as the science of his vocation, will never need to butcher his trees. From the very first he will study the natural habit of the tree, and find out whether it is upright and somewhat pyramidal like the Northern Spy, and the Cooper's Market, or spreading like the Greening and the Roxbury Russet, and every year he will prune to favor that natural habit of his tree. By attention to each tree, at least twice a year, once in the resting season and once in the growing season, he will make the whole vigor of his tree shape itself toward one ideal form, and none



FIG. 2241.

of the strength of its growth will be wasted. Thus he will sooner have fruit, and an orchard into which he can invite his brother fruit growers with pride and pleasure. Fig. 2241 shows a tree pruned with some judgment and may serve to illustrate what has been said upon this subject.

Tree butchery, or the cutting away of large limbs, referred to above, not only enfeebles the tree by reason of the decay thus developed, but it tends to throw the strength of the tree into water sprouts instead of into the fruit spurs.

A Wrong Method.—The grower in such a case is beginning his work from the wrong place; he is beginning at the centre when he

should begin at the circumference. He should take his pruners and thin out the smaller outer branches, and so work toward the centre; thus he will thin out his tree by the removal of superfluous wood, and of superfluous fruit spurs, and he will find little need for his saw in the interior. This, of course, means a great deal of work and expense; but in this Twentieth Century we in Canada must give more time to our fruit orchards, or step to one

side; we must cease to grow crops of seeds and skins, and begin to grow crisp flesh and aromatic juice, painted with carmine on the exterior by the King of Day. Let us grow such fruit, pack it in fancy packages, and we shall fear no inspectors, nor glutted markets, but find even distant buyers coming to our very doors to buy these goods, for which our fame shall soon become world wide.

HINTS FOR HORTICULTURAL SOCIETIES.

THE life of an organization consists in activity. If the meetings cease, and no work is undertaken for the general good, the society dies a natural death, but if meetings are frequent, lectures and exhibits often provided, and civic improvements undertaken, the interest of the members will deepen, the numbers increase and the whole society put on fresh vigor.

Monthly meetings during the winter season are most important. If held from house to house and made to partake of the social element they will become very popular. There are always some members willing to write a paper to open a discussion upon some garden topic, and the president can easily draw out from each one present, his experience or knowledge of the subject in hand.

Then as spring approaches plans may be matured for civic improvements. This may be worked in many ways; grounds about public buildings may be planted with trees, shrubs and flowers, public streets lined with trees and objectionable features removed, or

perhaps, with municipal aid, plans for a park or cemetery designed and executed.

Two years ago a ladies' club in Carthage, Mo., undertook improvements in home and school grounds. They offered prizes for the most beautiful school room window, the decoration to be made by plants grown in the school room, from cuttings, seeds or bulbs, within a certain specified time.

The teachers and scholars became so interested that in 1900, fifteen prizes were offered to the children for gardens outside also, five for most artistic plants and training of vines on houses, five for best bed of China Asters not more than fifty square feet, and five for best vegetable garden, not more than two rods square. As soon as these prizes were announced, additional ones were offered by the citizens until they were thirty in all. Some 1500 varieties were made, and three hundred children persevered to the end, which was the first week in October, when the prizes were awarded. The result was most marked in making the city beautiful.

FIRST LESSONS IN FRUIT GROWING—III.

IN our last lesson, we studied the structure of the stem or trunk of a tree as it appears in a cross-section of any of our ordinary trees and we saw that it was made up of an outer or dead bark and an inner or live bark, of an outer or softer sapwood and an inner hard and dry heart-wood in the centre of which might be seen the remains of a soft spongy pith.

Just here it may be well for us to study the process of growth and learn how the trunk increases in size.

How Tree Trunks Increase in Diameter.

When a seed germinates, it sends down a radicle, or little root into the soil, and sends up a tiny shoot which bears leaves. As soon as root, stem, and leaves are formed, the tree has all of the parts necessary for growth. Growth takes place in two directions,—that is in length and breadth.

First let us see how the trunk, or in fact any of the parts, increases in thickness.

The root-hairs and rootlets absorb from the soil water, containing the plant-food in solution. This water, usually spoken of as the sap, passes from cell to cell through the roots and sapwood of the stem and branches to the leaves. In the leaves, it is spread out over a wide surface exposing it to the action of sunlight, where it undergoes considerable change; much of the water is given off through the pores (Stoma) of the leaves, so that the sap is reduced in bulk and thickened, something as it is by boiling in sugar making.

Carbonic acid gas is also taken in by the leaves from the atmosphere, and certain chemical changes take place in the sap by which its sugar is converted into starchy

matter, and prepared to enter into the formation of new growth.

This elaborated material then passes from the leaves down the branches and trunk and roots just beneath the inner bark, forming a sticky, half-liquid coating, over all the parts of the trees, known as the cambium layer. In the process of drying and hardening, this forms a new layer of sapwood on its inner side and a thin layer of new bark on its out-

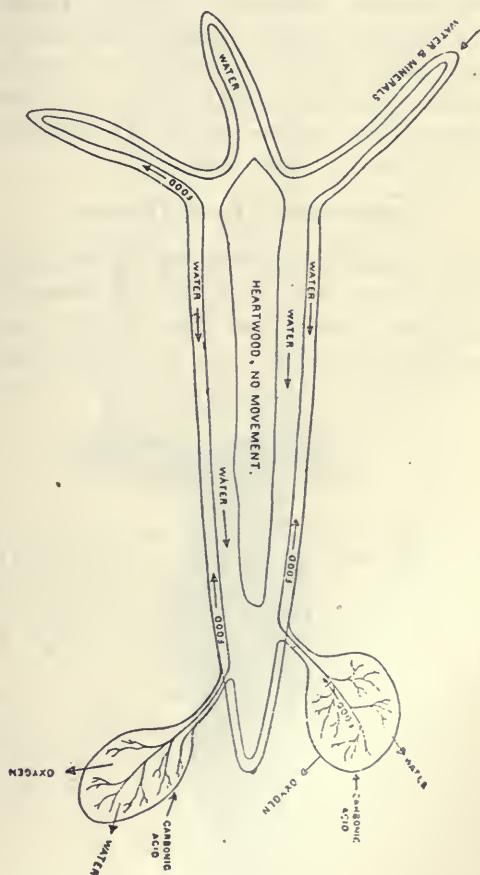


FIG. 2242. Scheme showing upward course of water or sap, and downward course of combined or elaborated plant food. (From U. S. bulletin, Forestry for Farmers.)

erside. Every living and growing part of the tree therefore, is increased in thickness each year by a layer of new wood, just inside the outer bark. In any cross section of a trunk or branch, these annual deposits may be seen in the form of distinct concentric rings. By counting these rings, we may tell the age of the tree, or any part of it, and by a comparison of the relative sizes of the rings, we may also learn much of the history of the tree, and the times through which it has passed. A thick ring naturally represents a season of good growth, while a narrow one near it indicates that growth in some way has been checked. It may have been by lack of cultivation, or draught or by the ravages of caterpillars on the foliage. Each ring is an annual chapter in the history of the tree, and the more we study the nature and habits of trees, the better are we able to read the history written in these rings.

Experiments to Prove Theories.

As a means of proving that the annual increase comes from the downward flow of the cambium, rather than from the direct upward flow of the sap, as is often supposed to be the case, we have only to tie a band

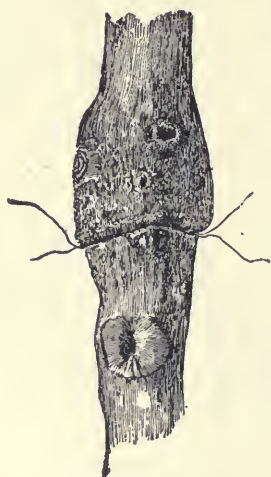


FIG. 2243. A young tree, in which the growth is checked by label wire.



FIG. 2244. A pine girdled by mice. The lower part has only four annual rings while the upper part has eight. (From Bailey's Pruning Book.)

tightly about any rapid growing part, so as to check the downward course of the cambium, and note the rapid increase in growth above the band just as a dam thrown across a stream increases the volume of the stream above it.

The accompanying illustrations show this very clearly.

That the new growth is laid on each year in rings just beneath the inner bark may be proven by lifting a corner of bark and inserting beneath it a thin sheet of tin foil, then binding the bark in place again so that it will rapidly heal over. Before long all trace of the wound will have disappeared, but when the trunk is cut through at that point, the tin foil will be found to be covered with a ring of wood corresponding to each year that has elapsed since it was placed there.

The annual laying on of new growth may also be easily seen in the gradual healing and covering over of wounds made in pruning.

How Tree-Trunks Lengthen.

So much for the growth in thickness. Now let us see how growth in height and length takes place.

The same flow of sap to the leaves, and return flow of cambium which causes the increase in thickness of any of the parts of the tree, causes the rapid development of new cells of wood at the extremities of the branches; and the lengthening of a branch or the increase in height of a tree takes place only by the addition of new growth at its extremity, any part below the extremity increases only in diameter. The trunk of a tree, therefore, does not lengthen, except by the pruning off of the lower branches of the head. If this is the case, the question might be asked: "How then do we account for the great high trunks in forest trees, where no pruning knife could ever have been used?" Such trunks are the result of Nature's pruning. One by one, the lower branches have all been smothered out and killed by crowding trees, and as each branch has rooted and fallen away, the resulting wound has been covered over by new growth till we have at last the high smooth trunk, with no sign of the lower branches that once grew from its sides even to the ground. But the man in the saw-mill, who cuts this trunk into lumber, has plenty of evidence of their existence by the knots found in the lumber. Near the base of the trunk, these knots are all near the centre of the log, but the farther the cut from the base, the nearer the knots come to the surface, till near the top the uncovered wounds and dead stubs may easily be seen.

One of the practical lessons for the fruit-grower to learn from this is that the trunks of his fruit trees do not lengthen, and he should therefore be careful in dealing with

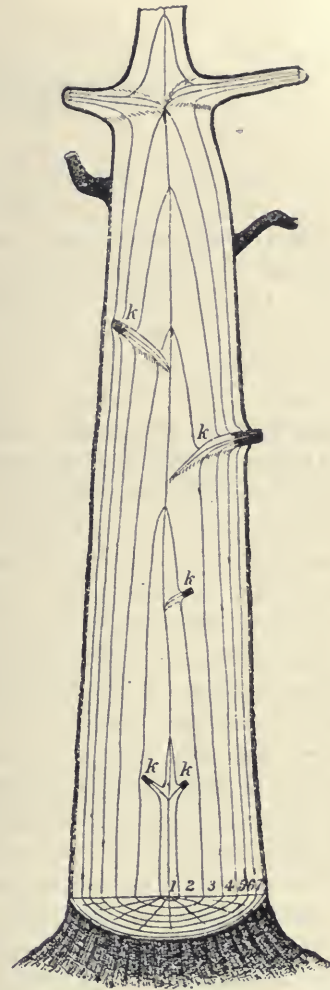


FIG. 2245. Scheme to illustrate the arrangement of annual growth. 1, 2, 3 etc; represent the parts of the stem grown during the first, second, third etc; twenty years of the life of the tree. K. Knots; the shaded part of each is the dead knot of lumber. (U. S. Bulletin, Forestry for Farmers.)


young trees to start the heads at the desired height to begin with, and not have to prune off large limbs afterward to the detriment of the tree.

H. L. HUTT.

O. A. C. Guelph.

FALLING OF GOOSEBERRIES.

BY STANLEY SPILLETT, FRUIT EXPERIMENTER, NANTYR.

IR, I will answer with your permission through the medium of the Canadian Horticulturist some of the questions I have already answered individually by mail, and this work I am pleased to do at any time for any reason.

(1). *Respecting the Premature Falling of the Fruit of Certain Varieties of Gooseberries.*

This falling is certainly becoming a serious matter with some varieties. We tried this season to ascertain as correctly as possible what proportion of fruit fell off. Downing and Pearl gave six quarts of fruit per bushel with two quarts each of fallen fruit; Red Jacket gave seven and one-half quarts per bushel and two quarts of fallen fruit; Champion gave ten quarts of fruit with very few fallen berries. I at first attributed this falling to the berries having been stung by a moth, or rather the deposition of an egg in the berry by a moth or fly. Close observation however revealed the fact that stung berries turn red before falling and a grub is found in the fallen berry. The greater part of the fallen fruit this year was just as hard and clean and as fully developed as any of the fruit remaining on the bush and no grubs in it either, so the grub theory will not account for it. Some of my correspondents say that the fruit scales with the heat before falling.

Our bushes being on a clayey soil, made rich with stable manure, the foliage fully protects the fruit and it is only an occasional exposed branch that suffers from sun scald and yet the berries tumble.

One correspondent says, "My bushes are on sand and fully half the fruit has fallen." This correspondent attributes the falling to

sun scald and the scalding to poor foliage. This gentleman's experience fortifies the opinion I had previously formed that this falling is due to the bushes setting more fruit than they can carry in a dry time. One dry season here a fine young apple orchard in grass (hay) did the same thing. This overloading will also affect the foliage, especially on sandy soil.

The gooseberry has two well defined and separate layers of roots, one layer at what was the end of the cutting, the other layer near the surface of the ground. It is this upper layer that causes deep cultivation near the bush to be so harmful. Indeed a scuffer is an impertinence among gooseberry bushes except it be one width of the scuffer up the centre of the rows set six feet apart. I do all cultivation under and immediately about the bush with a long handle shovel, ground sharp, selecting one well set down on handle. This is a good shove hoe.

I can account for the Champion not losing its fruit only by its tremendous vigor. One bush will send up from a hundred to a hundred and fifty suckers two feet long, in one season.

Thinning will no doubt be a remedy for this falling if my contention is correct, but where one has hundreds or even thousands of bushes this is not practicable. I have been trying to accomplish the same thing by pruning, and it is certain that larger fruit has been the result and less mildew another; this may be because the spraying mixture can be got to all parts of the bush, but one thing is certain, when mildew makes its appearance the fruit on sheltered branches suffers most.

Pruning.—I now prune my bushes in the fall, after the leaves have fallen, or are dead. All suckers, except from two to three for renewal, are cut away. I have had very few of these to cut away this fall. From six to eight stems are left to a bush and these stems are cleaned of all branches one third the way up. The heads are then thinned out so that the hand can be pressed freely among the branches without being torn. Each of the stems has now the appearance

of a little tree. In the month of June all suckers are cut away except renewals and the heads again thinned, cutting the branches close to the stem.

Questions relative to mildew, comparison of varieties, etc., will be answered in the near future by your permission. Of course I shall be pleased to have the opinion of others upon this subject of the "Falling of Gooseberries."

CENTRAL EXPERIMENTAL FARM NOTES.—XX.

BY PROFESSOR W. T. MACOUN, OTTAWA.

WINTER set in here on November 14th, and four inches of snow fell on that date. This has been gradually increasing in depth until now there is more than a foot on the ground, making a fine cover for herbaceous plants and protecting the roots of trees and shrubs. The weather on the whole has been fine and moderately cold.

Lime Wash.—We recently made the final inspection of the trees sprayed with lime-wash last winter for the eradication of Oyster shell bark louse, and with few exceptions very few scales were left on the trees. This has proven a very satisfactory remedy here and is so cheap and simple in preparation that it should be used by all fruit growers whose trees are infested with bark lice. The experiments tried last winter were with two pounds of lime to one gallon of water, and with one pound lime to one gallon of water, and also with the addition of one pound salt to five gallons of water. As a result of these experiments it has been found that if the lime is fresh and good, one pound to one gallon of water is a sufficiently strong mixture to use. The addition of one pound

of salt to five gallons of water made the trees brighter and cleaner looking, but it was not found to be necessary in removing the scales. The mixture should be applied in the autumn or early winter.

Sunscald.—One of the most serious obstacles to successful apple culture in Eastern and Northern Ontario, in the province of Quebec, in some parts of Nova Scotia and New Brunswick, and probably to a limited extent on Prince Edward Island, is what is commonly known as sunscald. The usual form, and that which does most injury in these parts of Canada, is first noticed during the spring or early summer. Trees which have not been long planted are usually most affected by it, but older trees do not escape it. The unhealthy appearance of the bark and wood, on the south and south-western sides of the trunk of the tree and on the larger branches, is the first indication of the injury. Afterwards the bark dries up and falls away. Trees are often so badly affected that they die. This injury occurs during the latter part of winter or very early in spring. It is generally supposed that it is caused by the alternate thawing and freezing

of the sap on the sides of the tree most exposed to the sun. Very often there are warm days during the month of March and the sun shining on the trunk of the tree thaws the sap. A severe frost at night freezes it up again and this may occur several times. This alternate thawing and freezing either separates the bark and the cambium from the trunk of the tree or injures the wood tissues so much that growth is prevented and these parts die. If the tree is badly sunscalded it is so weakened that it dies before the wound can heal over, or very frequently the same season.

Prevention. This injury may be prevented to a large extent by only planting trees which are headed low, thus exposing but a short trunk to the rays of the sun ; also by inclining the young trees somewhat to the south when planting, thus preventing the sun's rays striking the trunk except for a short time. Where the trees have been planted and are liable to become sunscalded, the trunks may be protected by using a veneer of wood which encircles the trees, thus preventing the rays of the sun from striking the trunk. It should be loose so that there will be an air space between it and the tree. The ends of it can be fastened together by means of wire or twine. Another protector is made of finely meshed galvanized iron netting which is more permanent than the wooden protector. In outlying districts where these protectors cannot be purchased, a good substitute may be made out of birch bark. Building paper tied around the tree is also useful. All of these protectors are effective in preventing the ravages of mice. Cornstalks, boards, and many other things may

be used to protect the tree from sunscald. Nothing, however, that will be likely to harbor mice should be used. These protectors should be put on in the autumn. When a tree has been injured by sunscald the injured parts should be carefully cleaned away and the wound covered with grafting wax or paint. If the tree is young and likely to suffer, it should be protected in the manner described above.

The tree protectors used at the Central Experimental Farm are made of elm. They are of two sizes, one kind being thirty inches long and twelve inches wide, and the other twenty inches long and eleven inches wide, and have proved very satisfactory in preventing sunscald and injury from mice. They were procured in Minnesota and Kansas and are sold at \$6.00 per thousand, although I have been informed they can be obtained for less.

There is another form of sunscald which appears to be a summer scald. When the weather is very hot in summer large limbs, which are exposed, are often scalded apparently by the fierce heat. This probably occurs most frequently when there is not a good circulation of sap in the tree and when the tree is making very little growth. It also often occurs after too severe pruning. Limbs which have been protected by the foliage from other limbs are suddenly laid bare after heavy pruning. The bark on these limbs is not as tough as that of limbs which have always been exposed to the weather and it cannot withstand the heat of the sun and sunscald occurs. Hence, trees should be kept vigorous and pruning be done very carefully.

A NEW AND EFFECTIVE SPRAY.*

LIME, SULPHUR AND SALT.

VIEWS OF MR. GEO. E. FISHER, INSPECTOR.

IF we could discover a cheap and effective spray that would combine the qualities of both an insecticide and fungicide, it would certainly be a great relief to our fruit growers.

Whale oil soap is very expensive, when a large orchard is to be treated, costing, at the very lowest count, over \$3.00 per hundred pounds, and while crude petroleum is an effective insecticide, it must be applied with great care or the trees will suffer injury.

The appointment, by the Department of Agriculture, of Mr. G. E. Fisher as provincial inspector of San Jose Scale was a most judicious one, for this gentleman is possessed of such tenacity of purpose and thoroughness of investigation, as is gaining for him a mastery of details, superior even to many persons of professional pretensions.

In his opinion, the spray of lime, sulphur and salt, used with success in California, will be of great service to us, possibly displacing the expensive Bordeaux mixture, and proving effective both for destroying insects and fungi. He does not advocate a winter application, but advises the first spraying as late as possible before the opening of the buds.

The following report of his experiments was given us by Mr. Fisher and will be of great interest.

"Lime, salt and sulphur, the popular Californian remedy, was tried and gave very encouraging results, both in killing the scab and in cleaning up the tree, under what are commonly accepted as most adverse weather

conditions. Fifteen large peach trees were treated with a mixture of the proportion of thirty-five pounds lime, fifteen pounds salt and fifteen pounds sulphur, with enough water to make forty gallons of wash. This



FIG. 2246. Showing tree treated on one side; appearance when dormant. The right side of the tree shown was sprayed and the left side was unsprayed.

[* The spray used in the illustrations is the Bordeaux, but the lime, sulphur and salt appears to be equally effective and much more economical.—Ed.]



FIG. 2247. Showing the condition of one of the trees sprayed on one side at the time of picking the fruit. The leaves have been cut away with the pruning shears to enable the photograph to show the fruit upon the sprayed half (right side) of the tree, and the absence of fruit upon the unsprayed half (left side). The sprayed half matured 284.8 pounds of the finest peaches; the unsprayed half matured only 13.3 pounds. Over 1,100 peaches were thinned from the sprayed half of this tree to enable the limbs to bear the crop, while the unsprayed half was unthinned except by curl.

was boiled in an iron kettle three hours and the sulphur thoroughly incorporated. It was applied to the trees while yet very hot and covered them completely. The spraying was finished in a light rain, which increased to a heavy rain and continued all night and the next day. This was followed during the rest of the month, by alternate fine and rainy weather, making altogether the wettest May I ever knew. It is generally believed that the success of this treatment in California is due to the absence of rainfall and that, in any case, a couple of weeks of dry weather, immediately following the application, is indispensable to its success. This work was closely watched by the neighbors all the way through and the result carefully observed, and the consensus of opinion is that there was an entire absence of leaf curl, the foliage was plenti-

ful and well developed, the wood brighter and cleaner, and the fruit larger, higher colored and more plentiful than in adjoining trees.

In this experiment, as in the others, the treated row reached across the orchard and all varieties present were included.

Encouraging Results.—The very promising indications from this St. Catharines work led to an extended enquiry as to what use had been made of this remedy. The replies are disappointing and show distinctly that the favorite remedy which, in many parts of California has superseded all others, has not received even so much as a fair trial in the East. It was tried experimentally last spring by Dr. Howard, Chief Entomologist at Washington, D. C., and by the growers in Burlington County, New Jersey, and they report unexpectedly good results.



FIG. 2248. Showing tree treated on one side; appearance after development of curl in the spring.

An all-around remedy.—The experience with this mixture in the East is too limited to justify speaking very definitely about it, but as an all round remedy, insecticide and fungicide, it promises so remarkably well that we shall be pleased indeed to have as many join us as are willing, in making further experiments next April and report the results.

The proportions of the ingredients used for this work may be varied to almost any extent. A good pump will spray two pounds of lime to the gallon of mixture, without clogging, and, if the lime be good and properly slacked, there will be no settlings in the barrel. In his experiment Dr. Howard used thirty pounds of lime, twenty pounds of sulphur and fifteen pounds of salt, in fifty imperial gallons of mixture, which with our lime makes a light covering.

The proportions recommended from California are thirty-five pounds of lime, fifteen pounds of sulphur and fifteen pounds of salt, in fifty imperial gallons of mixture, and the California people suggest that a larger pro-

portion of lime and sulphur than they use might be advantageous in the East and also that with them salt is not an essential.

In our recent experiments to determine the respective qualities of gray and white lime, their behavior in the process of preparation, application to the trees and subsequent durability, we made a large number of tests, in some of which salt was omitted, ranging from one-half pound to two pounds of lime to the gallon of mixture. So far as we have gone, white lime slacks stronger than the gray, but no difficulty was experienced in applying either. A wash, containing only one-half pound of lime to the gallon of mixture, makes a very light covering indeed; the sulphur remains exposed, is readily wiped off by the finger and would likely be removed by rain or even a high wind. A wash, having two pounds of lime to the gallon of mixture, makes a covering so thick and heavy that it breaks and scales off, when the trees are swayed by the wind. After numerous tests, we have fixed upon thirty-five pounds of lime, fifteen pounds of

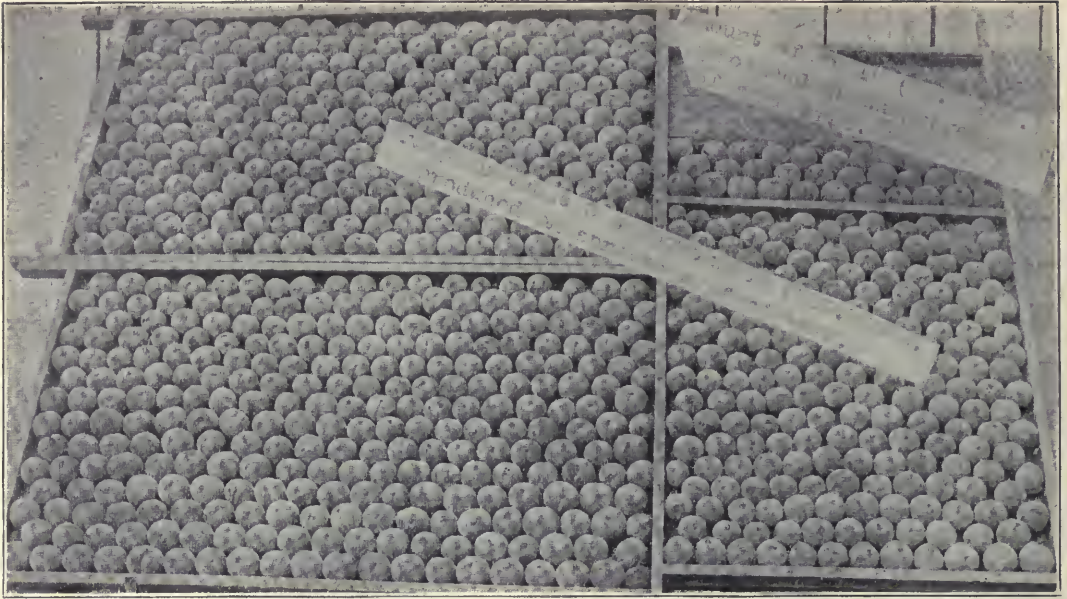


FIG. 2249. Peaches gathered from the tree sprayed on one side shown in the preceding plate. The fruit shown on the two drying trays on the left, together with that in the lower compartment of the tray on the right, was gathered from the sprayed half of this tree. The peaches shown in the upper right hand compartment were all that matured on the unsprayed half of the same tree. The sprayed half bore 718 peaches, weighing 284.8 pounds.



FIG. 2250. Showing a limb of the sprayed half of the tree, after the removing of the leaves with pruning shears. A good idea of the size and perfection of this fruit may be obtained from the plate. The color was strikingly high and rich. The size of the fruit is further shown by the fact that the peaches averaged 252 per hundred pounds.

sulphur and ten pounds of salt in thirty gallons of mixture as the proportions most likely to give satisfaction. This does not break up and makes sufficient body to hold the sulphur beneath it in contact with the bark.

In California, the cooking is mostly done by steam generated in furnaces for the purpose and piped to barrels, which is much more convenient and economical than cooking in a kettle over the fire, as we are obliged to do.

In preparing the mixture we used a large kettle, in which was placed about fifteen gallons of water, to which the sulphur and

salt were added and then brought to the boiling point. Then the lime was thrown in adding hot water from another kettle if necessary to prevent burning. When the lime was slacked, we added still more hot water, boiled two to three hours, increased the quantity to thirty gallons with hot water and applied while hot.

With suitable working appliances, the preparation of this mixture is not so serious an undertaking as it may appear. At no time will the mixture work as well as when perfectly fresh.

HOW TO HUSTLE TOMATOES.



HE horticultural department of the Ohio State University has had considerable success in raising tomatoes, and Mr. W. S. Turner thus describes in the Agricultural Student the method used :

Sow the seed (Livingston's Beauty) the first week in February. Transplant first week in March, two by three inches. Again in cold frame to harden first week in April, four by six inches. Plant in field as the weather will permit from 5th to 15th of May, setting the plants with spade nearly to the first blossom stalk. It does not injure them in the least to be set slanting, four by two feet. Mulch with coarse manure as you plant. As soon as plants are well established, prune all side branches off, leaving blossom stalks and terminal bud. Make a trellis for each row, using one iron piping (obtained from old iron dealers), cut into posts of six feet in length, drive in ground two feet, sixty to seventy feet apart in rows.

Stretch wire to each row, beginning at further end from wire coil or spool and wrapping once around each interweaving post, about two or three inches from top to end. Use a plastering lathe for a stake, one to each plant ; drive into the soil lightly and fasten to wire with double pointed tacks. Continue pruning the plants and tying to lathe as they grow ; twice below the wire and once above it. Then let the plant branch.

Advantages of the method are : The fruit ripens two or three weeks earlier than ordinary plants of same age. From twenty to forty per cent. larger than ordinary fruit. A larger yield per acre by ten to twenty per cent. Fruit easy to pick and always clean, less liable to rot.

Disadvantages are : It requires more labor and more plants per acre. The fruit has a tendency to be more irregular.

POINT PLEASANT PARK, HALIFAX.

BY PROFESSOR F. C. SEARS, WOLFVILLE, N. S.

ONE of the most beautiful spots in all Nova Scotia (and her sons and daughters think there are many beautiful spots in the province), is Point Pleasant Park, of Halifax, better known as "South Park." It comprises



FIG. 2251. "There Are Miles of Splendid Drives."

somewhat over two hundred acres within its borders and occupies the extreme end of the peninsula upon which the city of Halifax is built. The land is owned by the Imperial Government, but in 1873 was leased to the City of Halifax for a period of nine hundred and ninety-nine years, at the not unreasonable rental of one shilling per year.

The key note of the park is naturalness, and one is surprised and delighted on leaving the street car and walking the comparatively short distance necessary to reach the Park to find how completely his surroundings have changed. From the hustle and hurry of the city he has passed to the quiet and restfulness of the country. And what a beautiful country. It is the original,

virgin forest, with only enough change to accommodate those who wish to see and enjoy its beauties.

The prevailing trees are the conifers, spruces and pines and hemlocks, but there are also many birches and poplars in certain parts, growing naturally, besides several kinds, especially maples, which have been planted by those in charge. And among and beneath the trees are quantities of native shrubs of all kinds, and more beautiful than all else, the native ferns of Nova Scotia. Add to this a profusion of wild flowers in their seasons and one has a variety of charms such as is not often met with.

There are miles of splendid drives which take one to every part of the park; now skirting the shore and giving one a view of the water with the ships coming and going, and all the beauties and attractions of the sea; then passing through some thick wood where one feels as though he were miles from any human habitation; or again sweep-



FIG. 2252. "Now Skirting the Shore and Giving One a View of the Water."



FIG. 2253. "Or Again Sweeping Under Grand Old Pines."

ing under grand old pines, with glimpses through the open woods of the outside world. Besides these, numberless walks intersect each other in every direction, making it possible to reach almost any desired spot with a bicycle if one is thus mounted.

There are few buildings within the park and such as there are fit harmoniously into their surroundings. It has been said the park is leased to the City of Halifax by the Imperial Government, but the right to use the park, or any part of it, for military purposes is still maintained by the Government, and as if to remind the writer of this fact he finds fortifications in several parts of the park. The cannon are pointed toward the open sea and piles of cannon balls stand in readiness as though hostile warships were expected at any moment. But the most interesting building of all is the "Martello Tower," a round stone building of mysterious and antiquated appearance, which stands in the midst of an open spot in the Park, like others both in England and

America. It was built in those days when England dreaded a landing of Napoleon upon British Territory, and it is to these buildings that Campbell refers in his "Ye Mariners of England,"—

"Britannia needs no bulwarks—
No towers along the steep,
Her march is o'er the mountain waves,
Her home is on the deep."

Another most interesting feature of the Park is the abundant growth of Scotch heather in a certain part, where sixty years ago a Scottish regiment, fresh from the land of the thistle and the heather, spent some time in tents while their barracks were being repaired. Here it has grown and thriven, with only enough attention from the authorities to see that it is not carried away entirely by the ever present tourist with a thirst for souvenirs.

So long a time has elapsed since the Park was established that most of its founders have passed on to their reward. Yet their names should ever be held in grateful remembrance by those who enjoy the beauties which they have preserved,—Sir John S. Thompson, Sir William Young, Judge Ritchie, Hon. William Stairs and John Doull, Esq. Their work was "a labor of love" and certainly the result is a "vision of loveliness."



FIG. 2254. "The Martello Tower a Grand Stone Building of Mysterious and Antiquated Appearance."

FATHER BURKE'S IMPRESSIONS OF US.

IN the Agricultural press of the Maritime Provinces, where he is always a welcome visitor, our friend, the Reverend Father Burke, of Prince Edward Island, has been giving his impressions of our late general meeting, our people and our province. Needless to say those clever articles leave a very favorable impression of us in the public mind. We have taken the liberty of transcribing portions of an article which is to be followed by others from his pen in the Maritime Homestead.

"If you require my impressions of the Cobourg Fruit Grower's Convention, I can only tell you that never meetings more intelligent, advanced and enthusiastic, discussing purely horticultural matters, did I attend anywhere."

* * * * *

Here Father Burke praises Ontario for its encouragement to agriculture, citing its public grants and what they effect.

A Pleasure to Meet Them.

"A people or class of people, so generally favored, ought to have pretty complete institutions and good men as a result of their operation. Ontario farmers, or the representatives of them I met at Cobourg, are certainly a wide-awake, well-informed, progressive class. It is a pleasure to come in contact with such people, a greater pleasure and satisfaction than to meet good men of any other calling, for, after all, the country must depend on the farmer and its hope is in his proper education. I was delighted to remark with what a grasp of principle, what confidence, what readiness of expression, what conciseness and accuracy of speech, the speakers as a rule, brought to the discussion of the varied sub-

jects which the scheme of convention matter suggested during those three days of three sessions each, in which the Association sat."

* * * * *

The programme and discussions are here cited :

5,000 Members.

"The Fruit Growers' Association of Ontario has a grand membership—something like 5,000, I believe ; and that same is an assurance of how highly it is regarded in the country and its authoritative place in the scheme of agricultural information. From one end of the great province to the other, from the United States, from Quebec, from Nova Scotia and Prince Edward Island, came lovers of horticulture, to sit at the feet of those men of Ontario who had made fruit-growing one of the most promising industries of the country and its chief hope.

Canadians Equal to the Best

was a kind of personal satisfaction in the comparisons to be made. Good men, the best the Great Republic could furnish ; men of deep learning and wide experience, were present to lend the light of their counsel on all matters which engage the mind of the horticulturist ; they were fresh, too, from the object lessons which the Pan-American Exposition so well taught ; and still, excellent as they were, expert men as they were, practical men as they were, progressive men as they were, the young men of Ontario formerly engaged in the scientific work of the colleges, and, may I add too, many of the common growers from the farms, were really their equals in all the wide range of horticultural knowledge. I was proud of the Ontario horticulturist, proud of the institu-

tions which turned him out, and proud of Canada, which, although embarking late in those pursuits, had already attained a position so high and honorable among agricultural communities. I only regretted that in some of her provinces, in New Brunswick and Prince Edward Island especially, the same advantages which Ontario afforded were not within every young man's reach, the same emulation was not aroused, the same patriotic sense of duty to the agricultural interests, on the part of the local administrations was not manifest. However, we must live in hopes. Our day will come."

* * * * *

A Fruit Growing Region.

"The town of Cobourg, too, is in the midst of one of the best apple districts of Ontario; and, in springtime, the air must be redolent with the sweet scent of the blossoms. It is not wonderful, then, that everybody in Cobourg is interested in trees and flowers and fruit and all the concerns they give rise to. On this account the night sessions, known as 'Popular Meetings,' were universally attended, the last being so packed that standing room was at a premium and many were turned away at the doors. Such interest is certainly very encouraging, augers well for the work and affords a means of conveying information and stimulus where otherwise they could not be made to reach."

The Town Turned Out to Welcome Us.

Then all the local celebrities were out in force—the mayor, the sheriff, the district president, colonels as thick as if one were in Kentucky, senators, M.P.'s, M.P.P.'s, all anxious to lend their presence, their voices,

their assistance to the popular cause. And such galaxies of ladies! Who shall enumerate them? Let it be said, also, that the hospitality of Cobourgers is the heartiest and most princely to be anywhere enjoyed.

* * * * *

Father Burke then goes at length into the "burning question of cold storage," as he terms it but of this the facts are now known sufficiently and while he speaks of the case made by Professor Robertson, "that matter of systematic exportation," he declares that "the the debate on cold storage was not satisfactory and left the impression that there was still much to be done before we reach the ideal."

Speaking of packing, Father Burke gives out his only unfavorable impression of us:

"If half of what was said of the latter were true, one ought to button up his pockets carefully when in Ontario. There was an awfully bad word for the fruit packed. Professor Robertson dealt with this matter without gloves, as it affected transportation and the old country markets—honesty is vital to those matters—and with the cold facts in hand, made a most unenviable case against the Ontario packer. Of course there was a deal of shifting of responsibility between the local and general buyer; but even with all this a feeling of shame pervaded the gathering."

* * * * *

The Law Will Take its Course.

"The convention declared for an honest, impartial, intelligent enforcement of the Marks' Act as it stood on the statute." Father Burke declares in conclusion; and with the comment, "This was satisfactory," promises further articles on the meeting.



GREENHOUSE AND WINDOW.

THE GREENHOUSE.

THE propagation of bedding out plants will be one of the main features of February work in the greenhouse. Coleus, ageratum, alternanthera, heliotrope and cuttings from similar plants will root readily now in sand. Shade them from the hot sun for a few hours at mid-day.

Carnation cuttings root best in sand in shallow boxes, two inches deep. Place the boxes near the glass, in a cool part of the greenhouse, 50° at night and 60° in the day time suits carnation cuttings splendidly. Keep the sand moist but not soddened with water.

All ferns should be repotted at once, if not already done. January is the best time to re-pot ferns, before the young fronds have made much headway.

Cyclamens and Freesias, that have done flowering, should still have sufficient water to keep the soil fairly well moistened. Pick the decayed flowers, and seed pods (if any) from these plants; it will help to strengthen and mature the bulbs for next season.

Annuals.—It is a little early for sowing annuals even for early flowering, but a few

pots of petunia and verbenas seed can be sown toward the end of the month. Lobelia seed should be sown at once so as to secure good sized plants for hanging baskets, window boxes, etc. Cuttings of all trailing plants for hanging baskets, etc., should be started without delay.

Azaleas that are out of flower should be syringed every day to promote new growth, and keep down red spider. Fuchsias should be syringed daily.

Use more copious supplies of water for syringing purposes, as the heat of the sun increases. Syringe early in the day, and on warm sunny days if possible. Use plenty of water on the floors. Evaporation of moisture is good for the plants, and keeps down insect pests.

Easter is early this year. Easter lilies to be on time will require to be brought into a warm part of the house.

Holland bulbs for Easter flowering should be in the greenhouse now. Better be a week too early than a week too late. The flowering period of plants can be retarded or the flowers retained much better as a rule, than they can be forced into flower. Undue

forcing is dangerous, even by experienced plant growers.

Give a little air on hot sunny days, 70° to 75° in day time and 55° to 60° at night is a good temperature at this season of the year. Close ventilators early in the day.

THE WINDOW.

Plants in the window will begin to feel the increased heat of the sun. The latter will necessitate a close watch being kept for insect pests. The best way to avoid trouble with the insect pests is to try and prevent them from making their appearance at all. Keeping all growing plants such as fuchsias, cyperus, geraniums, calla lilies, etc., fairly well moistened at the roots, and syringing or sprinkling the foliage of the plants two or three times a week with luke warm water, are about the safest preventives of the appearance of insect pests. A little weak tobacco water in the water the plants are syringed with, applied once a week, will prevent the attacks of some of these enemies of plant life. No plant can flourish when attacked by insects, and it is very hard to get rid of them when once they have gained headway.

Chrysanthemum plants, that are wanted to be kept for cuttings, should be kept in a rather cool temperature, about 50° suits them. They require less water now than when in flower.

Petunias.—For pot culture quite as well as for lawn decoration, both the single and double petunias are very suitable. Considering the ease with which they may be grown, the beauty and freedom of their bloom, especially in the single varieties, and their long season, it is indeed hard to find any plants better suited to the amateur's needs. To raise pot plants from seeds select your seeds in January and sow at any time up to March. Petunias have the smallest

Seed Sowing.—There are few seeds that can be sown to advantage just yet, except perhaps those recommended for the greenhouse, such as petunias and verbenas, both of which require quite a length of the time before good sized plants will be produced.

Cold Dips.—Watch out for sudden cold dips, February and March are treacherous months in this respect. The hot sun in the day time often lures the plant lover into a feeling of false security and induces neglect in taking proper precautions against the extreme cold often experienced at night at this season of the year. If by any chance your plants should be frozen, place them at once in a warm corner of the room where the temperature is a few degrees above freezing. Cover the plants up carefully and keep them in the dark for twenty four hours until the frost is out of them. You may perhaps in this way save them, if not frozen too badly. I consider this treatment preferable to deluging the plants with cold water as is sometimes recommended. Even if the latter course is taken with the plants, keeping them dark for a day or so will help them materially. Avoid bringing plants that have been frozen into a high temperature, and keep them away from bright sunlight for a week or two after they have been frozen. They will also need less water for a time, until root action and growth have well commenced.

Hamilton.

W. HUNT.

seeds and in sowing should be covered very lightly. It is a good plan to sow in a pot, covering the pot with glass until the seedlings are up. With the use of the glass less water is necessary which is an advantage in the case of such fine seed. As soon as the seedlings are up so that they can be handled, they should be pricked out into a pan, afterwards giving each plant a two-inch pot to itself, later shifting on as growth demands.—*Vick's Magazine*.

THE WINTER'S WINDOW GARDEN.

BY E. E. REXFORD.

WHAT TO HAVE IN IT AND HOW TO TAKE CARE OF IT.

THE only fuchsia which can be depended on for flowers in winter is the variety called *speciosa*. This is not as rich in color as most of the summer bloomers, but it is a really beautiful plant.

The abutilons, popularly known as flowering maples, because of the resemblance of their foliage to that of our native maple, are excellent bloomers, and require very little care. Their flowers are pedant and bell-shaped, some red, some pink, some yellow and some pure white.

The calla is a general favorite. Its large, rich foliage makes it an attractive plant without flowers. Add these to it, and it becomes a most ornamental feature of any collection. This is one of the plants for which the general rule given for watering must be modified somewhat. It likes a good deal of water at its roots, and a daily application will generally be needed.

The Primroses.—For winter flowering, we have few plants more satisfactory than the Chinese primrose, *Primula obconica* and *Primula forbesii*—better known as the baby primrose—all members of the same family. The Chinese primrose is the most difficult one of the three to grow well, but the amateur will find but little trouble with it if she is careful to pot it so that the crown of the plant stands well above the soil. If it is low enough for water to stand about it, decay is pretty sure to set in. Let the soil slope towards the sides of the pot. The others will not require special treatment in this respect. *Primula obconica* has flowers of a pale lilac, often nearly pure white, with a yellow-green eye, and they are so freely pro-

duced that a healthy plant is nearly covered with them. They have a woodsy air about them that gives them a special charm to those who love our native flowers. The "baby primrose" is one of the most delightful of all flowers, and one of the very easiest to grow, and grow well. Plants procured now, or a month or two later, will soon come into bloom, and throughout the winter they will be a mass of dainty rosy blossoms with a yellow eye—lovable little things that will attract more attention and receive more admiration than anything else your window garden will be likely to contain. *Primula obconica* has great quantities of very fine roots, and must be given a good deal of water. These plants do well in comparative shade.

Pentas lanceolata is quite a new plant, but it deserves a place in all collections. It has a star-shaped flower of purest white. Its flowers are borne in clusters, and bear considerable resemblance to the *bouvardia* which everybody admires, but which so few succeed in growing, even in a greenhouse. *Pentas* is a good substitute for it, and has the merit of being easy to grow.

The Paris Daisy—known as *Marguerite* abroad—is seldom seen in the window garden, but it would be extensively grown if its merits were more generally understood. It literally "grows like a weed." There are two varieties, one having white flowers, the other flowers of a soft, sulphur yellow. They so closely resemble our native daisy that they are often mistaken for it. To those who have a friendship for the daisy this will be a strong argument in their favor, and may induce them to give these plants a

place in their collection. They will never regret doing so. As cut flowers they are very valuable, as they last for days. Young plants soon become large ones, and next summer they can be planted out in the garden, where they will continue to bloom during the entire season, and new ones be started from them for the coming winter.

While the ordinary carnation does not take kindly to cultivation in the window of the living room, the Marguerite strain does, and we often find among plants of this class, grown from seed, in the outdoor garden, varieties equal in form, and size, and color, the carnations grown by our florists so extensively, and far excelling them in freedom of bloom and vital force. This class blooms late in the season, when grown in the open ground, but it will show, by its first flowers, what the general character of its blooms are to be, and the most desirable plants can be lifted and potted for winter use. Do this as early as possible, that the plants may become well established before being taken into the house.

The Single Petunia of the garden will be found one of the most satisfactory of all flowers for winter blooming. It is able to make a window resemble a bit of last summer's garden, so bright, so cheerful is it. For every little attention you bestow upon it it will laugh back at you in blossoms of violet and pink, and white, and you will soon be on most intimate terms of friendship with it, for it will win its way to your heart by its pleasant ways and looks. When the plant seems to have exhausted the flowering capacity of its branches, cut them back to within five or six inches of the soil, apply a little fertilizer, and in a short time you will see new branches growing, from which you can expect a bountiful crop of flowers, a little later.

The Sword Ferns.—Among the most desirable of plants grown for foliage I would name

the sword and Boston ferns. The Boston fern is the ordinary sword fern on a little larger scale. That is about all the difference one can see in them. These will grow wherever a geranium will, and their luxuriance will prove a constant delight to the owner of every window garden. Do not attempt to grow the adiantum ferns in the living room, for they will prove failures there. The atmosphere will be too hot and dry for them.

And do not attempt to grow roses there, as you will be tempted to do. While it is possible to grow some varieties of this beautiful flower in the living room, it is not an easy matter to do so, and success will only come after one has served an apprenticeship at growing less exacting plants. Roses are sure to be infested with aphides, red spiders, and other insects which are extremely harmful to plant life, and they will soon spread to all your plants from your rose bushes, thus making it necessary to wage a constant warfare for their extermination. Nearly all the plants I have advised are comparatively free from the attacks of insects, unless brought into contact with them as bred on other plants.

Turn your plants frequently, that all sides of them may get an equal chance at the light. Pinch off the end of its branches, if a plant does not grow in compact, bushy shape, and keep them pinched off until other branches start. By persisting in this treatment you can make almost any plant grow as you want it to. Do not neglect the plant while it is growing. Then is the very time when it needs training. If let alone until it has developed, you will find it almost impossible to bring it into symmetrical shape. And much of the energies of the plant will have been wasted in the growth which is cut away. Regulate this growth, as it goes on, and there will be no waste of plant energy.—*Home and Flowers.*

THE SHRUBBERY IN WINTER.

IN another column a correspondent calls attention to some winter effects in the wild shrubbery which interested him, and, perhaps, it is worth while to repeat what we have often said—that when home-grounds are planted there are many cases where more attention should be given to their winter aspect. Where a house is occupied in summer only, the principal aim should be to make it attractive at that season. There are many trees and shrubs which are conspicuously beautiful in spring and autumn, and, of course, there are places where the selection of species and varieties should be made with special reference to these seasons. But where a country house is occupied in winter it can readily be seen that in some part of the grounds commanded by the windows of rooms appropriated for winter use provision should be made for the prospect at this season. In the middle of this century it was not uncommon to have a glade or lawn in such a position bounded by spruce, firs, hemlocks, pines and other conifers with such broad-leaved evergreens as kalmias, rhododendrons, American hollies, and some herbaceous plants with persistent foliage, like yuccas, for example, and the whole brightened by a few shrubs with colored fruit, like the Carolina rose, black alder, cockspur thorn, snowberry and bittersweet. Such an arrangement has some merits, although the idea that this green foliage brought in a touch of summer when January was at its bleakest was rather fanciful. Any effort to produce summer scenery in winter must be a failure, as, indeed, it ought to be, for what is desirable at a particular season in the landscape is an effect which will harmonize with the prevalent tone of that season, rather than one

which conflicts with it. As a matter of fact, however, there is no hint of summer in the winter aspect of evergreens. In freezing weather their darkened foliage only emphasizes the strength of the cold, and the particular human interest they have at this season is their hospitable suggestion of shelter against the driving winds. Whatever is especially home-like and companionable or genial in their winter appearance is not that they remind one of summer verdure, but that they are sturdy enough not only to brave the wildest weather, but to give us some protection against its blast.

Following the fashion imported from the mother country, coniferous trees were too exclusively planted in the early years of the century, and we can all remember country houses which were half-smothered in summer under the gloom of their heavy foliage. Perhaps the reaction against this has been too decided, and some of these trees which are beautiful at all seasons are too much neglected. Nevertheless, there is an abundance of beauty and variety to be found in deciduous trees and shrubs at this season, and in any scheme of planting for winter effect in this climate they should have the largest place. Most trees have a beauty in winter which is quite as distinct and individual as it is in any other season. Indeed, this is the best time for studying the peculiar structure or framework of a tree—that is, for noting how its branches diverge and the manner in which they break into spray. The special characteristics of a particular species, whether of dignity or grace, are shown as well when the trees are stripped of their summer garments as at any other time, and never until leaves are gone can we mark the peculiar beauty of the different

figures made by the interlacing branchlets against the sky. There is no need to speak of the endless varieties in the shade and texture of the bark, both of trunk and limb and spray, and it is well known that the richest colors in a winter landscape are those of the warm browns of a distant wood. The colors of the small twigs are especially varied, too, and the tinted mist which hovers over a shrubbery a few hundred feet away is collected from the mingled colors of the bark on the smaller branches.

This brings us to a point in planting shrubbery for winter effect which we wish here to insist upon. In former articles we have given lists of various shrubs which are ornamented with brightly colored fruit until midwinter, but we have not so often named those whose bark lends a pleasing color to the short days of the year. The glossy green branchlets of the *kerrias*, the golden bark of the willows which warms into still brighter yellow with the approach of spring, the ashen gray of some of the *viburnums* and the scarlet twigs of the dogwoods make pictures of unfailing beauty, either against the glittering snow or the brown earth. Taking the *Cornels* alone one is surprised to find the variety of form and color they

display at this season. Our common Red Osier, *Cornus stolonifera*, with its broad leaves, pale flowers and bluish white fruit, is ornamental all summer. Its leaves turn purple and yellow in autumn, and now its purple-red branches sustain its beauty in midwinter. There is a variety of the plant, too, with golden-yellow bark, specimens of which have been exhibited by Mr. Warren Manning at the Massachusetts Horticultural Society, and it is distinct and striking.

Cornus alba, the common European Red Osier, which is often sold by nurserymen as *Cornus sanguinea*, is another bright-barked plant. It is a variable shrub, and one strain, which is called *alba Siberica*, has stems of almost vermilion. *Cornus circinata*, too, one of our native species which is found on wooded hillsides, in addition to its beautiful flowers and light blue, has red and yellow stems which are sometimes finely mottled, while *Cornus candidissima* has an ashen gray bark of a singularly soft texture. Certainly a group of these *Cornels* properly arranged gives a pleasing stretch of varied color, and with judicious selections from other families, by harmonious contrasts, a most interesting feature can be added to our winter landscapes.—*Garden and Forest*.

COLEUS IN WINTER.

COLEUS plants, as a rule, are not a success in an ordinary window in the winter season. For several years I experimented with them, using both old and young plants, keeping them cool or hot, moist or dry, and finally hit on a plan by following which they are a complete success every year. My experience has been that old plants generally do not do well the whole winter through. When the main stock becomes thick and woody it is time to discard it and begin afresh.

My plan is this : Just before the first killing frost in the fall; I go the rounds of my coleus plants taking about three slips of each variety. These are placed in glasses of water to root ; when nicely rooted they are potted off into three or four inch pots in a soil composed of two-thirds garden soil (not too rich) mixed with one-third sand. I find a very rich soil is not conducive to extra bright color in the leaves and I have known the plants to be grown beautifully bright in pure sand. I keep two plants of

each kind and they remain in the same pots until spring. They are placed in the highest shelf in my bay window, which makes them six feet from the floor and one and a half feet below the top of the window. It is of necessity a very hot place as, in addition to the heat from the stove, the sun beats in on them all the forenoon and half the afternoon of every sunny day.

As the plants begin to grow, I pinch out the ends of the shoots to make them branch freely until about February 1st, when I let them grow for slips. They are usually large enough by March 1st, when I put them in water to root. In a few days the roots appear and they are potted off as before. I give the new plants the upper shelf then to get them in good condition to bed out in May and set the old stock plants aside. Some of the old plants will branch out again and raise another lot of slips, which are discarded at once.

From the time the slips are potted off in the fall until March, that high shelf is my particular pride. The gorgeous colors and soft velvety texture of the leaves are as beautiful as flowers.

Some of the best varieties are Golden Bedder, Charm, John Goode, South Park and Golden Crown for yellow sorts; Louise Chretien, Ruby and Moonbeam among white and pale tints; Crisp Beauty, Geo. Simpson among light, red and pink sorts; Dr. Koch, Brightness, Firebrand, Fire King and Midnight, crimson and maroon; Pro-

gress, Mrs. Hunt and Butterfly among mottled and shaded ones.

There are a few new varieties that are of a stronger growth, with leaves of immense size for coleus. I have not tried any of them but have seen them displayed in green-houses and also at our last agricultural fair. Some of the leaves were five or six inches long and though the plants are handsome as decorative plants, they do not seem so appropriate or beautiful for bedding purposes as the old sorts. A specimen plant is a lovely sight, but a mass of them spoils the effect.

Coleus, as a rule, are remarkably free from insect foes. I never found any but the mealy bug on mine, but they can kill the plants in short order if they are left undisturbed a short time, as they seem to sap the life of the plant so that it wilts and falls over before one knows anything is the matter with it. Eternal vigilance is the best remedy, but when you find them on the plants the use of alcohol or whisky on them will kill them at once.

It is hard to give coleus too much heat but a chill will cause the leaves to fall off. Mine are watered three times a week during cold weather. Later in spring they need it every day. They are sprayed every morning before the sun is on them. To sum it all up, young plants, plenty of heat, and not too much water will give one a fine display of coleus all winter.—*Vick's Monthly*.

Flowers in the Window.—Lord Nelson once said something to the following effect:

"The best testimony to proper and happy management of household affairs is borne by

the windows of the house. If flowers are to be seen through the well polished glass, one can be certain to find a good table and orderly children. The windows indicate the character of the inhabitants of the house."



The Canadian Horticulturist

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SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

OUR BOOK TABLE.

Old Time Gardens, newly set forth by Alice Morse Earle, a book of the Sweet of the Year, published by The McMillan Co., price \$2.50.

This is a most interesting book to any one who is a lover of flowers and their associations with other days. The book is not intended to be one of instruction to those who wish for practical information about floriculture, but rather a book of diversion for one who already knows something about flowers. To give our readers some idea of the book, we quote from the chapter entitled, "In Lilac Tide":

"A flower opens, and lo, another year, is the beautiful and suggestive legend in the Catacombs. Since these words were written, how many years have begun, how many flowers have opened; and yet nature has never let us weary of spring and spring

flowers. My garden knows well the time o' the year. It needs no almanac to count the months.

"The untaught Spring is wise
In Cowslips and Anemones."

"While I sit shivering, idling, wondering when I can start the garden, lo, there are Snowdrops and spring starting up to greet me.

"Even in earliest spring there are days when there is no green in grass, tree or shrub; but when the garden lover is conscious that winter is gone and spring is waiting. There is in every garden, in every door yard, as in the field and by the roadside, in some indefinable way a look of spring. One hint of spring comes even before its flowers, you

can smell its coming. The snow is gone from the garden walks and some of the open beds ; you walk warily down the softened path at midday, and you smell the earth as it basks in the sun, and a faint scent comes from some twigs and leaves. Both speak of summer, not of spring ; and the fragrance from that Cedar tree is equally suggestive of summer. But break off that slender branch of calycanthus, how fresh and welcome its delightful spring scent. Carry it into the house with branches of forsythia, and how quickly one fills its leaf buds and the other blossoms.

"Viola tricolor.—For several years the first blossom of the new year in our garden was neither the snowdrop or crocus, but the Ladies' Delight, that laughing, speaking little garden face, which is not really a spring flower, it is a stray from summer ; but it is such a shrewd, intelligent little creature that it readily found out that spring was here ere man or other flowers knew it. This dear little primitive of the pansy tribe has become wonderfully scarce save in cherished old gardens like those of Salem, where I saw this year a space thirty feet long and several feet wide, under flowering shrubs and bushes, wholly covered with the everyday, homely little blooms of Ladies' Delight. They have the partly colored petal of the existing strain of English pansies, distinct from the French and German pansies, and I doubt not are the descendants of the cherished garden children of the English settlers. Gerard describes this little English pansy or Heartease in 1587 under the name of *Viola tricolor*.

"The flowers in form and figure like the violet, and for the most part of the same bignesse, of three sundry colors, purple, yellow and white or blue, by reason of the beauty and braverie of which colors they are very pleasing to the eye, for smell they have little or none."

"In Breck's Book of Flowers, 1851, is the

first printed reference I find to the flower under the name Ladies' Delight. In my childhood I never heard it called aught else ; but it has a score of folk names, all testifying to an affectionate intimacy, Bird's-eye ; Garden-gate ; Johnny-jump-up ; None-so-pretty ; Kitty-come ; Kit-run-about ; Three-faces-under-a-hood ; Come-and-cuddle-me ; Pink-of-my-Joan ; Kiss-me ; Tickle-my-fancy ; Kiss-me-ere-I-rise ; Jump-up-and-kiss-me. To our little flower has also been given this folk name, Meet-her-in-the-entry-kiss-her-in-the-buttery, the longest plant name in the English language, rivalled only by Miss Jekyll's triumph of nomenclature for the Stonecrop, namely, Welcome-home-husband-be-he-ever-so-drunk.

"These little Ladies' Delights have infinite variety of expression, some are laughing and roguish, some sharp and shrewd, some surprised, others worried, all are animated and vivacious, and a few saucy to a degree. They are as companionable as people, nay, more ; they are as companionable as children. No wonder children love them ; they recognize kindred spirits. I know a child who picked unbidden a choice rose, and hid it under her apron. But as she passed a bed of Ladies' Delights blowing in the wind, peering winking, mocking, she suddenly threw the rose at them, crying out pettishly, 'Here, take your old flower.'

"The dandelion is to many the golden seal of spring, but it blooms the whole circle of the year in sly garden corners and in the grass. Of it might have been written the lines:—

"It smiles upon the lap of May,
To sultry August spreads its charms,
Lights pale October on its way,
And twines December's arms."

"I have picked both Ladies' Delights and dandelions every month in the year.

"I suppose the common crocus would not be deemed a very great garden ornament in midsummer, in its lowly growth ; but in its

spring blossoming it is, to use another's words, 'most gladsome of the early flowers.' A bed of crocuses is certainly a keen pleasure, glowing in the sun, almost as grateful to the human eye as to the honey-gathering bees that come unerringly, from somewhere, to hover over the golden cups.

How welcome after winter is the sound of that humming.

Catalogues. John A. Bruce & Co., Seed Merchants, Hamilton, Canada.

Robert Evans Seed Co. Ltd., Hamilton, Ont. Catalogue of Farm and Garden Seeds, 1902.

QUESTION DRAWER.

Pure Paris Green.

Mr. Bruner of Olinda, asks where to buy pure paris green. We would be pleased to have this information for our own use. Mr. Bruner says what he had last year was of no use at all. He wrote to the house in Toronto from which he purchased it, complaining and received the following reply:—

With reference to Paris green, we never sold so much as we have this year. In fact we supply the city with it for spraying purposes, and they say they never had such good green. In fact one-half pound Paris green to a barrel of water is not nearly sufficient, you ought to use three pounds to the barrel.

It is no wonder it was useless if so weak that three pounds was needed for a barrel of water!!

We would advise sending samples of

Paris green to Pro. Shutt, of the Central Experimental Farm, Ottawa, asking for analysis, before purchasing in any considerable quantity.

Barbed Wire Fence.—A subscriber at Whitby, proposing to erect a barbed wire fence around his orchard, asks whether it would be more difficult to get in or out if the fence were built on a slat, say of six or eight inches at the top. If so, whether the fence should lean in or out?

We would not favor a barbed wire fence around any orchard or garden. We consider them an abomination, destroying the usefulness of more horses, and tearing more clothes, than all the fruit that would ever be stolen. No doubt such a fence leaning outward would be impossible to climb and keep out all fruit stealers.

OPEN LETTERS.

Interprovincial Trade in Live Stock.

Trade in live stock between Eastern and Western Canada has been growing rapidly within the last few years. This increase of trade has been promoted, and in fact made possible, by the wise and generous treatment of the C. P. R. During the month of December and the first eight days in January, forty-six cars of grade and pure-bred cattle were shipped from Eastern Canada to British Columbia. These cars contained 2,223 head, and cost in the East something over \$30,000.00. Besides these, a considerable number have recently been sent to the North West Territories, and orders are now in hand for additional shipments to be made to the last mentioned territory. In order to

promote this trade, which has proved very profitable in many districts in Eastern Canada, farmers should use first-class Shorthorn bulls. By careful selection and wise treatment females sired by such bulls will prove excellent dairy cows.

It is a noticeable fact that seven-tenths of the stock used for dairy purposes in Great Britain are Shorthorns and Shorthorn grades. Probably the most suitable dairy cow for the average farmer is a Shorthorn-Ayrshire cross. Steers whose dams are strong grade Ayrshire cows if got by a Shorthorn bull prove excellent feeders and very desirable shipping cattle. As dairy animals there are none, in the hands of the general farmer, that will excel the Shorthorn-Ayrshire cross.

F. W. HODSON.

Our Work.

The Ontario Fruit Growers' Association have still an enormous amount of work on hand, in order to assist in developing this fair province of Ontario. Their work may be the means of advertising the Dominion as a whole.

We see vast strides made in the Southern States, by which they are becoming famous. How did this come about? The great motive power is the Southern Industrial Association, which is bound together to advertise in every possible way the great resources of the Southern States. The Fruit Growers' Association can do the same with the portion of Ontario devoted to fruit. This portion is at present very small compared with what it will be in the near future. Our statesmen, our politicians, our manufacturers and mercantile men are doing their best in this respect and the Canadian Horticulturist is doing a great deal, but our Fruit Growers' Association have still a large work on hand. At the last annual meeting a flood of useful knowledge was set forth, mostly beneficial to individuals, but not so much to the industry as a whole.

The work of the Association should be continuous throughout the year. We elect officers and directors to look after our interests and, if they have the power, they undoubtedly should have also the means to further the fruit interests of which we Canadians are justly proud. One branch of work which they should look after, is the correcting of false impressions regarding our country.

England's statesmen, journalists and leaders in thought and action are the ones first to be brought to the realization of Ontario's claim as the brightest jewel in the British realm. We have been told and we know that the English are very conservative and once possessed of an idea they hold it tenaciously. For example we will quote a few false impressions from writers of high repute. Lord Macaulay's English History, considered one of the great works of literature, is to-day read and re-read in England by all the statesmen, journalists, politicians, ministers, lawyers, students and others. Now what impression do they derive about Canada in that work? Macaulay gives a beautiful description of Holland, he speaks of its fertility, its highly cultivated gardens, its quiet towns, trim villas, summer villas, summer houses flowers, renowned tulip beds, etc., and further he proceeds to say that "this view produces the same effect on an English traveller as the sight of Eng-

land produces on a Norwegian or a Canadian." Here we are classed as living in the same surroundings and climate as those of Norway.

Again we read in another renowned work, Gibbon's Decline and Fall of the Roman Empire, a similar statement. Gibbon describes the climate of Germany in the early days of the Christian Era as a country of intense frost and eternal winter, the home of the reindeer, an animal which requires the most intense cold; then he proceeds as follows: "Canada is at this day an exact picture of ancient Germany; although situated in the same parallel with France, that country experiences the most vigorous cold, the ground is covered with deep and lasting snow and the waters of the St. Lawrence are regularly frozen over in a season when the Seine river in France and the Thames river in England are free from ice."

You would infer from the above two quotations that flowers and fruits in Ontario would be an oddity. These are only a few of many instances which might be quoted, but enough is shown to prove that means are needed to counteract such wrong impressions.

The shipping of fruit to England assists in dispelling this error, but still other means are needed. A great effort is being made to develop the Great North West, but before that can be satisfactorily performed it is requisite that would-be settlers should be fully informed that they have a province close at hand where they may procure an abundance of fresh fruits daily. It is only a matter of a few years when a vast improvement in fruit transportation rates will be realized (providing our Association insist on securing them.) We will not be surprised to see fruit laid down in Winnipeg as fresh and nearly as cheaply as it is now being delivered in Montreal.

We had a golden opportunity to show the Duke and Duchess of York the resources of the fruit sections of Ontario, but it was lost, and they returned to England carrying only deep impressions of the great resources of the North West, our Indian people, the lumber camps of Quebec, and of some gorgeous military spectacles. Why should not our Association seek to induce a few of England's nobility to pay a summer visit to our fruit districts, so that, on their return, the English minds may be filled with reports of Ontario's beautiful climate and luscious fruits.

J. F. BRENNAN, Grimsby.



OUR AFFILIATED SOCIETIES.

Grimsby.—The annual meeting was better attended than usual, and much interest taken in the election of officers, which was determined by ballot.

Mrs. E. J. Palmer was again elected President, and E. H. Read, Secretary. It was agreed to give three hardy roses to each member, and from the F. G. A. list to select the Campbell's Early grape vine for the gentlemen and the Dentzia Lemoinei for the ladies.

The directors propose to hold house meetings during the winter for the discussion of flower and fruit topics; and in the month of June to hold a rose exhibit and have a social gathering of the members on the lawn of the President, which is situated conveniently near to the village.

Simcoe.—The annual meeting of the Simcoe Horticultural Society was held in the Free Library Hall on Wednesday evening, 8th inst. There was a fair attendance of members. The President, Mr. H. H. Groff was in the chair.

Mr. Groffs success.—The Directors presented a report for the past year. We desire to quote a couple of paragraphs from it, one regarding our President, and the other relating to the late County Crown Attorney, Mr. Ansley.

"The year just closed will long be remembered in this locality because of the great Pan-American Exhibition held almost at our doors, being only a couple of hours ride from our homes. Here the brains, so to speak, of the brightest and cleverest people of this new world, were brought into competition, and it is safe to conclude that the judging was fair and honest, and that those entitled to the honors won. In this contest our fair Province secured an honorable place in horticulture—judging by our population we secured first place. And among other awards in flowers it is a matter for congratulation that the worthy President of this society, out of thirteen entries in Gladioli, secured **thirteen first prizes** and captured the gold medal, thus demonstrating that the finest bulbs of this beautiful flower to be found in America, if not in the world, are grown by Mr. Groff, thousands of beautiful varieties being originated by him every year. And thus not only the grower but the town itself has been greatly advertised among the multitudes of people who attended this Exhibition. We feel that we cannot let this opportunity pass without assuring Mr. Groff of the exceeding great pleasure it gives us to know of his success, and we desire to congratulate him on the fact that in a competition of this kind he so completely vanquished all comers."

"For the first time in our history death has entered our ranks and snatched away one of our most esteemed members. John Henry Ansley was a gentleman who took an active part in the organization of this society. He was one who loved to work with flowers, fruit and vegetables, and he succeeded in their cultivation far beyond most others. His garden, where he spent many happy

hours, was a sight to behold. He held an important place in the community, and while he had reached a vigorous old age no one thought that he would so soon be taken from us. We desire to place on record our estimate of his worth and our appreciation of the services he rendered us."

Woodstock.—The annual meeting of the Horticultural Society was held in the city council chamber last night with a good attendance of members. The reports of the treasurer showed the finances of the society to be in excellent shape, and the directors' report recorded one of the busiest and most successful years in the history of the society. The election of officers resulted in the return of those who officiated in 1901, with the exception of several changes on the board of directors.

President Pattullo was in the chair and the business of the meeting was commenced at 7.45 o'clock.

The treasurer's report for the year showed the receipts to have been \$374.51; \$109.50 of which was for subscriptions, \$48.93 for admission fees to exhibition, premium for Horticulturist \$20.60 and Legislative grant \$58. The expenditure amounted to \$258.23; \$53.60 of which was for purchase of seed and plants, \$35.75 for working expenses of flower show, \$18.60 for advertising, etc., \$28 for prizes awarded for best kept flower gardens, \$16.78 for rent and light of buildings for meetings and exhibition, \$2.50 for incidentals and \$1.03 for periodicals. The balance left over all expenditures was \$116.28.

Directors' Annual Report 1901. In presenting their annual report for 1901 your directors are pleased to state that the year was one of satisfactory progress. The membership of the society was larger than ever before and notwithstanding the additional expenditure incurred in giving prizes for cottage gardens and to the scholars of the city schools, there was a substantial balance on hand at the end of the year.

The active assistance of lady members of the society has been secured and has proved most valuable. One of them, Mrs. Henry Davidson, read an extremely interesting paper at one of our meetings, and two others, Mrs. H. J. Finkle and Mrs. Dawson, have also promised to read papers at some future monthly meeting.

The interest and co-operation of the teachers and scholars of the public schools have also been enlisted in the work of the society.

Two lectures from the Provincial Association addressed the scholars of the Central school, and in the evening a public meeting in the Collegiate Institute, these addresses being much appreciated by all who heard them. The thanks of the society are also due to several of our local vocalists for their kindly assistance on the above occasion. In this connection we record with pleasure that for the first time the grounds of the Collegiate Institute, the Central school and the Court House

square were this year beautified by tasteful flower beds.

The action of the society in offering prizes for cottage gardens, flower and vegetable, and for the best kept lawns and boulevards, was a happy thought and excited much interest in the city. A similar movement under the patronage of Her Excellency Lady Minto proved most successful in Ottawa, and their is little doubt the example thus set by Ottawa and Woodstock will be followed by other cities and towns throughout the country. The annual flower exhibition was successful. There were a larger number of entries than usual, and the classification and artistic display showed an improvement upon that of former years. Although the attendance of the public generally was not as large as it should have been considering the character of the exhibition, there were present many representative citizens who showed a keen interest in the work of the society, and several of them addressed the meeting and assisted in the presentation of prizes to the successful competitors in the garden and flower competitions.

One of the monthly meetings of the Society took the form of an open air or "garden meeting" on the grounds of the President, and it is hoped that there may be similar meetings in future upon the invitation of other members of the society.

An influential committee was appointed during the year to report upon the further beautifying of the city parks, lawns, boulevards and streets, but owing to the lateness of the season it was not able to report. Your directors are of the opinion that this committee, by seeking co-operation with the city authorities, could enlarge its usefulness in the direction suggested.

Your secretary attended the annual meeting of the Provincial Horticultural Society and was again honored by being selected representative of this district in which capacity his usefulness to this society is enhanced.

All of which is respectfully submitted,

G. R. PATTULLO,
President.

J. S. SCARFF,
Secretary.

London.—The Directors of the London Horticultural Society beg to present their second annual report.

During the year 1901 they held eight meetings for the transaction of the business of the society. Two public meetings were also held in addition to the annual meeting on January 9th. At the first of these, on the 11th, of February, a lecture was given in the large assembly room of the Normal School by Dr. William Saunders, of Ottawa, director of the experimental farms of the Dominion. His subject was "Plants, Shrubs and Trees for the adornment of the Home," illustrated with a large series of beautiful lantern pictures. Notwithstanding the severity of the weather there was a large attendance of members and other residents of the city who showed a gratifying interest in the subject of the evening.

The second public meeting was held in the Auditorium of the Y. M. C. A. building on the evening of May 3rd. The Rev. Dr. Bethune gave an address on "Common insects injurious to garden flowers, fruits and vegetables," illustrated with

colored diagrams. Mr. Wm. Gammage was also to have spoken, but was prevented by indisposition from doing so. Vocal and instrumental music was very kindly supplied by Mrs. Gillies, Miss Brown and Miss Templeton. At the close of the proceedings the plants from the Ontario Fruit Growers' Association were distributed to the members, viz., the Anthony Waterer Spiraea and the Cumberland Black-cap Raspberry.

In addition to these meetings, the members were invited to attend the proceedings at the annual convention of the Canadian Horticultural Association, which was held in London on the 5th and 6th of August. Papers were read and addresses given by several of the leading florists of the Dominion; an address was also given by Dr. Bethune, one of our members, on the insects injurious to greenhouse plants. Through the liberality of many citizens of London, our society was enabled to entertain the delegates at a luncheon at Springbank, preceded by a ride through the principal parts of the city in a trolley car handsomely decorated for the occasion with plants and flowers by Mr. Wm. Gammage.

An invitation was also extended to our members to attend the 38th annual meeting of the Entomological society of Ontario, which was held here on the 13th and 14th of November. A considerable number availed themselves of the opportunity of hearing the interesting address at the public meeting at the Normal School.

Two highly successful flower shows were held during the summer. The first, in the City Hall, took place on the 26th and 27th of June, and was very well attended. The display of flowers was remarkably fine and showed a decided advance upon the June show of the preceding year. The second exhibition was held in Cronyn Hall on the 6th and 7th of August, being the same time as the Convention of the Canadian Horticultural Association. Though the actual number of figures exhibited may not have been as large as at the August show in 1900, there was a unanimous agreement that in excellence of quality, beauty and variety it was the best show that we have yet held. The professional florists attending the Convention stated that in their opinion it was one of the best exhibits of flowers from almost every point of view that it had been their pleasure to inspect. It would, indeed, have been difficult anywhere to have surpassed in excellence the petunias and gladioli that were exhibited, to say nothing of other kinds. We were fortunate in obtaining the use of Cronyn Hall, which proved admirably adapted to the purpose, enabling the flowers to be satisfactorily arranged and affording all that could be desired as regards light and ventilation. While it would hardly be fair to select a few names for special mention from among the nearly forty contributors of flowers, it is only just to refer to the trouble taken by Mr. Gammage in filling up the platform at the end of the hall with a beautiful and tastefully arranged collection of potted plants and flowers, which added very much to the appearance of the general display. A word may also be said regarding the tableful of fine flowers sent from the Woodland Cemetery. It is much to be regretted that about one hundred of our members sent no contribution of flowers. We earnestly

hope that during the coming season each member will try to cultivate at least one variety and produce a flower that will be worthy of exhibition at our shows this year.

In order to encourage our members to keep up their interest in flowers towards the close of the season, your directors offered three prizes at the Western Fair in September for the best collections of cut flowers exhibited by members of our society; only one member, however, competed for them. Thirty-six tulip bulbs were presented to each member for autumn planting, in addition to sixteen varieties of flower seeds and a choice of shrubs in the spring.

The directors have pleasure in stating that the finances of the society are in a satisfactory condition as shown by the audited statement of the treasurer, notwithstanding the fact that the flower shows and meetings have all been open to the public free of charge.

All of which is respectfully submitted,

R. W. RENNIE,
Secretary.

J. A. BALKWILL,
President.

London.—The following is an extract from an article in a recent issue of the London Advertiser, regarding the excellent work done in the city by the London Horticultural Society:—

"Residents of London, who have traveled to some extent, have arrived at the unanimous conclusion that despite its visible defects, London is a very beautiful city. In its well-kept residence streets few things unpleasant to the eye present themselves. This effect is produced to a great extent by its thousands of beautiful-shade trees in the streets and parks. Nothing could be more worthy of active assistance than the efforts of the body of public-spirited citizens comprising the London Horticultural Society to create in the public mind an interest in the care and judicious interest of ornamental trees, plants and flowers in the gardens, streets and parks of the city. The society was formed two years ago and already it has become a great power for good in London. Its members, while indulging their own individual taste for flower culture, have come much to foster in the public mind a love for the beautiful and a reverence for flowers which must eventually prevent their wanton destruction. It is a significant fact that the beautiful flowers in Victoria Park are never molested; and every summer there blooms a bed of geraniums in front of the public library that is the pride of the officials of that institution. The flowers are unprotected, and are within easy reach of the passer-by, yet no one has ever attempted to disturb them."

Waterloo.—The annual meeting of the Waterloo Horticultural Society was held in the old Council Chamber on Wednesday evening, January 8th, at 7 p.m., for the purpose of receiving the annual reports of the work during the past year, and of electing the officers for 1902.

Directors' Annual Report. Your directors, in presenting their seventh annual report, congratulate the society on its continued prosperity.

Our membership during the past year was 157, and we distributed as premiums 128 Cumberland

Raspberry Plants, 93 Spirea Japonica Bumalda, 76 Pear Trees, 110 German Prunes, 34 Hydrangeas paniculata grandiflora, 141 House Plants and 1,570 Hyacinth Bulbs.

We held no flower show during the past year, owing partly to the big expense incurred in connection with the one held in 1900, but we hope to be able to hold one during the summer of 1902, if the season proves at all favorable. Should this intention of ours become realized, we hope that every member of the society, as well as every lover of flowers in our prosperous town, will assist the directors, so as to make the exhibition of flowers and plants the most successful one in the history of the society.

The report of the Secretary-Treasurer and Auditors is before you, and we trust that our successors now to be elected, and the citizens generally, will continue to support and assist the good work of the Waterloo Horticultural Society.

The financial report was as follows:—

RECEIPTS.	
Balance on hand from 1901	\$ 27
Legislative Grant.....	124 00
Membership subscription.....	157 00
Sale of Stock.....	42 80
Total	\$324 07

EXPENDITURE.	
Horticultural Periodicals.....	\$125 00
Purchase of Seeds and Plants.....	166 23
Working Expenses.....	10 00
Printing, Postage, Freight, etc.....	21 10
Total	\$322 93

Balance on hand..... 1 14

A. WEIDENHAMMER,
President.

Kincardine.—The annual meeting of the Kincardine Horticultural Society was held on the 8th inst. pursuant to statute.

Secretary Joseph Barker, Esq., read the following excellent report:

"The Secretary of the Kincardine Horticultural Society in presenting this, the fifth annual report, begs to assure the members that he does so with very much pleasure, for the following and other reasons:

Because of the satisfactory increase in the society's membership for 1901.

Because of the very general satisfaction given to our members in the matter of tree and plant distribution during the year just closed.

Because in soliciting for membership we find the task is not near so difficult as formerly, owing to the fact that the utility of the Horticultural Societies and the benefits derived therefrom are better understood by the people.

Because unlike the Agricultural Societies, the Horticultural does not expend its funds in the distribution of prize money to the leading exhibitors and for expenses incurred in bringing from outside judges to pass upon the merit of high-grade stock, which has been obtained at a large outlay of money. But our Society agrees upon a judicious selection of premiums and invites its members to make their own choice—this course leaves no

room for jealousy to creep in nor for discord to crop up.

Because our Society is generously supplying a felt want it has thereby secured a large share of public favor and working on its present plan cannot fail to succeed.

Because for the small sum of \$1 membership fee, the return made is so great that the most of our members are puzzled to know how it is done.

Because our Society, in addition to the return of 4,242 trees and plants to its 110 members during the past year has been instrumental in securing for them from the Fruit Growers' Association of Ontario 126 plants and the annual report of the said Association meetings, at which are discussions, the best up-to-date methods of fruit culture—how to combat the fruit pests in our orchards

and gardens and how to be honest in the packing of apples.

Because in addition to the foregoing, our Society will continue its distribution of fruit trees, shrubs, plants and bulbs during the present year, and will secure for each member the monthly issue of the Canadian Horticulturist—a magazine of so much merit as to have secured at the great Pan-American Exhibition recently held at Buffalo, the first premium on horticultural literature; and further, for the benefit of the members of our society, one or more free public meetings will be convened at an early date when lectures will be given us by gentlemen eminently qualified to instruct in the culture of fruit, flowers, etc.

JOSEPH BARKER, Secretary.

The Companionships of Christianity.

The young man who abandons the church voluntarily cuts himself off from the most exalted thoughts that can enter the human heart. He puts himself out of the company of Raphael, and Rubins, and Thorwaldsen when he might live in the atmosphere that made them great. If Michael Angelo, and Sir Christopher Wren, and Inigo Jones welcome him at the door, Mendelssohn, and Beethoven, and Bach greet him as he enters. The

organ may be spavined and wind-galled. The choir may be an aggregation of tuneless tyros, but if the young man has brought any worshipful music in his soul into the church the same uplifting sentiments that inspired the "Messiah" and "Elijah" will sweep the chords of his heart as the organist touches the keys, or as the choir clears its collective throat and sings "Old Hundred."—The Rev. Francis E. Clark, D. D., in the Ladies' Home Journal.



We have a full line of Fruit and Ornamental Trees for Spring, 1902, at lowest rates.

Special attention given to dealers' orders

Farmers wishing to buy **first-class stock**, absolutely **first hand**, and **without paying agents' commissions**, should write at once for catalogue and price list.

Don't wait until the last minute, as you will be disappointed. Place orders early and secure the varieties you want. Correspondence solicited.

WINONA NURSERY CO.

J. W. SMITH, Manager.



FIG. 2255. CRANBERRY PIPPIN.

THE CANADIAN HORTICULTURIST

Vol 25 1902 No 3

* * MARCH * *

THE CRANBERRY PIPPIN.

THE CRANBERRY PIPPIN when grown to perfection is an excellent market apple. Larger and higher colored than Ben Davis, an equally good shipper, and of slightly better quality, it is worthy of planting in place of that variety, in localities to which it is adapted.

Its finest appearance is about Christmas time, when its beautiful stripes and splashes of carmine show up brilliantly upon the yellow background, while the flesh is still firm and crisp.

It succeeds well in the southern portions of the province, especially along the shores of lakes Ontario and Erie, but so far has not been planted by very many apple growers. The writer has about twenty-five trees of this variety in full bearing, which sometimes give an average of four barrels per tree of very fine high grade apples, when other varieties are almost worthless.

In the autumn of 1895 the writer shipped to Edinburgh a carload of this variety; the boxes having his full address upon the outside. They were sold by Messrs. Wood

Omerod & Co. at top prices, and later on we received the following letter from Geo. Pegler & Co., Aberdeen, Fruiterers to Her Majesty and H. R. H. The Prince of Wales :

"We do not have the pleasure of personally knowing you but we have had the pleasure of handling some of your produce in the form of "Cranberry Pippins." The fruit (grade No. 1) has turned out in perfect condition and we have had the greatest pleasure in sending it out.

"We have, for long, hoped someone would adopt your method of packing and we are glad to see it now done. Hitherto the slaughter of fine fruit, tumbled into barrels, has been disappointing all round, and rendered dealing a most unpleasant and often unprofitable matter.

"We hope the extra care and trouble involved in your pack has proved remunerative and feel assured it has only to be persevered in to bring about the best results."

A few years ago we put up one hundred bushel boxes of this same apple for the Australian market, securing from the C. P. R. a special through rate from Toronto to Sidney of \$1.00 per box.

They were magnificent samples, and, arriving in Sidney about Christmas, just in mid-summer and before the early Australian apples were ready, they were sold as high as \$3.75 a bushel box ! Unfortunately there was no cold storage on the Pacific steamers, so that only a part of the cargo arrived in good condition, and no further shipments will be made until we have steamers fitted for carrying them safely across the torrid zone.

The tree unfortunately only produces a good crop each alternate season, and sometimes, when soil conditions are unfavorable the apples are subject to warts and knots which mar its beauty.

The Cranberry Pippin was an accidental seedling on a farm near the Hudson river, in New York state, and seems to succeed best under conditions similar to those of its native place.

The fruit may be described as medium to large, roundish, oblate ; skin smooth, yellow shaded and striped with two shades of red ; stem slender, one one-eighth inches long, in deep cavity ; calyx closed in a wide, wrinkled basin. Flesh white, firm, crisp, moderately juicy, sub acid. Quality, fair. Season November to February.

We have inquired of several readers of this journal as to the success of this apple in various parts, but find it very little known. The following are some of the replies :—

“The Cranberry Pippin is not grown as plentifully throughout these western counties as it should be considering its good bearing, keeping and shipping qualities. Being an apple of rather coarse texture it is more suited to the southern districts, where it grows to larger size than it does up this way ; but the farther north I find it the crisper and better is its quality.

“I consider it a valuable apple for the southern and middle counties, but the tree will not do so well in the north. Here the tree is a fairly good bearer, but the fruit averages a little smaller than with you at Grimsby. “T. H. RACE, Mitchell.”

“In reply to yours of yesterday, I have no knowledge of the Cranberry Pippin being grown in this district. I have never seen the apple or heard of anyone about here having it. The Baldwin does not do here and I presume the other is, if anything, less hardy. “C. L. STEPHENS, Orillia.”

“Yours is just to hand regarding the Cranberry Pippin apple. It is not very extensively grown in this vicinity. I know of no reason why it should not be successfully grown here. I have seen a number of samples at our fall fairs that I considered fully up to the standard both in size and color. I consider it a most desirable variety to grow. “FRANK METCALFE, Blyth.”

“The Cranberry Pippin has not been a success with me ; it is very unproductive and drops early ; but it is a profitable apple in many orchards in this locality, where the land had more clay than mine.

“Each alternate year it loads very heavily, and brings good prices. The trees attain good size and are healthy. On such ground it is a very profitable tree to plant.

“W. H. DEMPSEY, Trenton.”

“The Cranberry Pippin is here to stay, being looked upon as one of our reliables, both as regards the tree and fruit. Upon all our variation of soil along the lake it thrives well and is reliable as a bearer, and I have heard the same verdict from those who grow it throughout this district. I hope to see it more generally grown.

“ALEX. MCD. ALLAN, Goderich.”

“The Cranberry Pippin is not much grown here. It is a fine robust tree, moderately productive, about like King, or rather better. Fruit blows off too easily. I don't think it will be extensively planted here.

“J. G. MITCHELL, Clarksburg.”

NOTES AND COMMENTS.

Township and County Fairs.—At the Annual Meeting of the Canadian Association of Fair and Exhibition Managers, in Toronto, the 30th of February, 1902, there were several hundred representative men present. A deep interest was manifest in certain proposals made by Mr. F. W. Hodson, of Ottawa, a year previous, for the increased usefulness of smaller fairs.

The Agricultural Societies have not been accomplishing the work designed in their institution, as laid down by the Agricultural and Arts Act, they have concentrated their whole strength upon the giving of prizes, and have lost sight of the most important object of their existence, viz, the education of their members in the best methods of Agriculture. The same lack was observed in the Horticultural Societies, and led to the formation of the Societies affiliated with our Association, which aim at making their meetings and exhibitions purely educative, and even go so far as to discourage giving prizes altogether, claiming that the funds should be spent for the equal benefit of every member. This plan entirely shuts off the professional exhibitor, and enables the Society to make most liberal gifts to each member of new and improved fruit trees, plants, seeds, bulbs, etc., one of the important objects contemplated in the Act. They also hold monthly meetings for the discussion of fruit and flower topics, which form a means for the interchange of experience on the best methods of practice—another object of their existence contemplated in the Act. Why should not our Agricultural Societies profit by their example?

The Farmers' Institutes are doing much of the educational work neglected by the Agri-

cultural and Horticultural Societies, and if these organizations could work in harmony a grand future is before us. Mr. G. C. Creelman, the Superintendent, met with general approval when he advocated that the Farmers' Institutes, the Women's Institutes, the Horticultural Societies, the Fruit Stations, the Fruit Growers' Associations, all should join forces, and make the fairs not only educative but also sociable and attractive.

Fruit Growers' Institutes, Mr. Creelman stated, were being formed in each district, under the supervision of the director of the Provincial Association representing the same. A series of about fifty meetings will be held during the month of March, so arranged as to cover the Province. Now these local Associations can assist the fair managers by revising the prize list for fruit, making it to include such varieties only as are desirable for each district.

Seed Fairs have been held by some four or five Farmers' Institutes, and Prof. C. A. Zavitz, of the O. A. C., Guelph, showed how grain exhibits could be mounted and shown at fairs so as to be of the greatest interest to farmers.

These should include some twenty four plants, a card showing name of variety, number of acres grown, yield per acre, kind of soil, etc. The judging should be done by experts, who could give reasons for their decisions. Mr. Geo. Hood, of Guelph, said the Seed Fair at his town was of the greatest practical use to the farmers. It gave an opportunity for the exchange of seed grain, and farmers exhibited far more with the object of selling their seed grain than fo

prizes, and they would come many miles for this purpose. An exhibit was ten bushels of a kind, and usually this was sold at an advance of 10 or 15 cents a bushel over the ordinary price for such grain. Mr. A. Reynolds, of Scarboro Junction, said such a fair had been conducted under the auspices of the Farmers' Institute of East York for ten years, and last year 6000 bushels of seed grain had changed hands! This meant much for improved grain growing in this locality. He was going to advocate three such seed fairs in different parts of his district this year.

The McDonald Seed Grain Division at Ottawa was represented by Mr. Clarke, who said that prizes to schools were proposed, somewhat as follows:—

(1). To the rural schools exhibiting the best collection of weeds pressed and mounted; and weed seeds in ounce bottles, each specimen and bottle to be properly labeled, 1st, \$50; 2nd, \$30; 3rd, \$20; 4th, \$10.

(2). For the best collection of grain and foliage crop plants, showing stolons, branches and part of root, consisting of five complete plants of each variety * * * Open to farmers' sons and daughters, under eighteen years of age—\$25; \$15; \$10; \$5.

(3). To the rural school exhibiting the best collection of beneficial and injurious insects, mounted and properly named in groups according to the fruits or grains on which they attack—\$50; \$30; \$20; \$10.

(4). To the rural school having the best kept lawn with the most artistically arranged flower beds; said flower beds to contain such varieties of plants as may be most helpful in the study of botany. Competitors for this prize must make application before the 15th of May of each year. (The judge in this competition will be the Public School inspector, together with any other person or persons whom the Association may see fit to appoint for the purpose of visiting the competing schools during the month of September. In all competitions of rural schools, the work must be done and the collections made by the pupils themselves under the direction of the teacher.)

Failure in Spraying.—Mr. A. Rogers, of Aylmer called at our office on the 14th February. He and his son carry on a fruit farm near that town with success, cultivating small fruits, grapes, peaches, plums, &c. "How do you prevent plum rot?" he asked. "Spraying with Bordeaux mixture," was our answer. "It has been a failure with me," said he. "I sprayed six times last season, and yet the plum rot was very serious in my orchard." "How did you do it?" Well, I rode along in the wagon and sprayed from that as we drove past the trees." "Did you thin your fruit?" "No, they hung in great clusters and we did not have time to thin them out."

Plum Rot.—The secret of this gentleman's failure to prevent the plum rot is the same which explains that of many others. The spraying of a tree is only effective for that portion of the leaves or fruit which is covered. Any part of a leaf, or fruit, left uncovered with spray is subject to the attack of a fungus disease. Fruit unthinned, or trees unpruned, are not easily covered; especially is it difficult to cover each separate plum when they hang in clusters, the fruits in close contact. How can a man, dashing a little spray upon a tree as he rides along past, cover every side of every plum on such a tree? The thing is simply impossible! He must get out of his wagon and walk about the tree and carefully spray every inch of wood, leaf and fruit, and then he may hope for success.

Thinning plums or peaches, when overloaded, is absolutely necessary for successful spraying for fruit rot, for when in contact the moisture is held between them that favors the spread of this fungus.

Peaches succeed very well about Aylmer, though only a few have as yet entered upon their cultivation. Mr. Rogers has several hundred trees, including such varieties as Crosby and Langhurst, because of their supposed hardiness. "I was surprised," he

said, "to find how well the Elberta does with me. It seems hardy and productive." "Have you much leaf curl upon the trees?" "No," he said, "very little indeed when I spray the trees with Bordeaux. There is a case in which my spraying has proved a complete success."

Near Markets.—I find my best markets near home for the sale of my peaches. I find any variety will sell, and I have no express charges or commissions. My son and I are in partnership; he does the business part of selling and collecting and I attend to the pickers and the care of the orchard.

Grapes also are all sold in Aylmer, St. Thomas or London. I find a good many shipped up from Grimsby and Winona, but I can get a slight advance upon that stock because mine goes into the shop much fresher from the vineyard. I have been a subscriber to your journal for many years and am putting into practice much of the information gained from it.

Hired Men for fruit farms, who will do satisfactory work, are fewer than for the grain farm. A man who can plough about trees without breaking the bark, who can plough close to the trees so that little or no work remains for plough or spade, who knows how to handle fruit in picking and carting so as to do it the least amount of injury, is much to be desired.

The usual wages for men seems to be about \$22.00 a month the year around, with house and garden, or about \$25.00 a month for eight or ten months with the same privileges. Of course this is a minimum price. We believe in gradations of pay according to worth, and when a man proves himself valuable, that value should be recognized by a supplemental amount. One such man we know who gets about \$350 per annum because he takes a certain amount of responsibility and shows an interest in the success of the enterprise.

Fruit Farms should pay for the labor from the beginning. No man should think of waiting for an income until his apple, pear or peach trees begin bearing, but should put something in every acre to make it pay the outlay upon it every year. A friend has purchased about one hundred acres of land at a cost of over fifteen thousand dollars; he has drained it, fertilized it, planted it, and worked it most thoroughly for about ten years, until the capital invested has run up to about \$30,000! He is waiting for the pear trees to pay back a good income proportionate to the capital invested. Well, they may, if all conditions are favorable, but how much better could the yearly income from small fruits or other crops between the trees have been made to equal the yearly expenses during these ten years of waiting, so that the capital invested would still be only the original \$15,000! He should ponder the old proverb:—

"Who plants pears,
Plants for his heirs!"

Foreigners who have money to invest should live in Canada a year or two at least, and study conditions. A civil engineer has thirty acres of a fruit farm; he left a good business in his own profession, where he was making \$2,500 per annum, and bought without studying conditions or location. He has wasted five years' income waiting for trees to grow, and now, because they do not yet produce fruit, he wants to sell and go on surveys in South Africa! But the location was ill-chosen, and goes begging for a buyer.

A **New Society** has been organized at Walkerton this winter through the enterprise of our director, Mr. A. E. Sherrington. He writes that they have a membership of more than fifty persons, and that it is the intention to hold a public meeting on the 13th of March. He is seeking in every

way to arouse local enthusiasm, with a view of making our next annual meeting a great success at Walkerton.

Peach Leaf Curl is a much more serious injury to the peach tree than is generally supposed. Few of us suspected that we were losing much from peach curl except a portion of the current year's fruit crop, but Pierce, of California, has proved that we lose also in the growth and vigor of the tree, and in the development of fruit buds and fruit spurs. For example, on ten trees sprayed in 1893 there was an average of about 2,800 fruit buds per inch of old wood, and on those unsprayed about 2,600, or a difference in favor of the sprayed trees of about seven per cent. Besides this he found a great many of the fruit buds produced on the sprayed trees so poorly developed that no fruit could be expected from them. For example, at the close of the season of 1893, he found the average number of imperfectly developed fruit buds on the sprayed trees to be 0.944 per lineal inch of old wood, while on the unsprayed trees the average per inch of old wood was 1.249; or 32 per cent. more imperfect fruit buds on the unsprayed than upon the sprayed trees.

Increased Value of Peaches Sprayed.—Pierce's experiments still further point to the great importance of treating the peach orchard either with Bordeaux, or with the lime and sulphur mixture, which seem to be of nearly equal value. He compares the value of spraying for increasing the quantity and quality of fruit, as determined by the cash value of such fruit when matured. To do this he reduces the results to the average net gain per cent. of the sprayed trees of each treated row over those of the adjoining unsprayed row. In one sprayed row, for example, the average calculated value of all fruit set per tree, when matured, was about \$12.00 and in the adjoining un-

sprayed about \$3.00, showing an excess of about \$9.00 in favor of the sprayed row. Some other rows so treated showed a very much larger net gain.

The heightened color of the peaches sprayed with copper salts was very evident in those same experiments, which of course will be an element in the increased value of the sprayed fruit.

The saving in the cost of picking the fruit from the sprayed trees was another element to be counted. To gather a ton of peaches from the unsprayed trees cost \$3.00 per ton, while from the sprayed trees it only cost about \$1.00 per ton; a saving of \$2.00 per ton, because of the less amount of tree and orchard surface to be gone over to gather a certain amount of fruit.

South African Peaches in England.—The South African war has temporarily checked a formidable rival of Canadian fruit growers in the British markets, especially in the line of tender fruits such as peaches and plums. Fortunately, however, these fruits are marketed at an entirely different season from those grown in Canada, and reach Covent Garden in January and February, when we have no peaches to ship; so that the rivalry will always be of a friendly nature.

So long ago as 1896 Cape Colony began to wake up to her great capabilities for the production of peaches for export to Great Britain and in 1897 the second consignment by the "Roslin Castle" was sold in Covent Garden on the 9th and 10th of January. There were 709 cases of peaches, and these were readily sold at from seven to twelve shillings per box of twenty fruits, the higher prices being for freestone peaches and the lower for clings.

Jamaica is exporting bananas to Great Britain but the voyage is long and so far the fruit has not arrived in good condition, partly owing, in the opinion of Messrs.

Garcia Jacobs & Co., of London, to the imperfect nature of the cold storage in the vessels which carried the fruit. So hopeful, however, is the prospect of success in this trade with Jamaica, that Sir Alfred Jones has announced his intention of inaugurating a "Banana Line" of steamers between Liverpool and Jamaica.

New Cherries.—VanDeman speaks, in Green's Fruit Grower, of three new cherries, viz.: The Bing, the Lambert and the Centennial, as follows:—

The Bing Cherry is a new variety that originated with a Chinaman in Oregon by that name. It is large, black when fully ripe, sweet and very solid in flesh. It is an early and abundant bearer and well worthy general trial wherever the sweet cherries flourish. The Lambert is a still newer kind and less is known of its characteristics, except to say that it is perhaps the largest variety known. It is dark, purplish red, of sweet but not high flavor and a fairly good bearer. The season of both these varieties is about medium. Very few of the eastern nurseries have trees of either of them for sale but the Bing is offered for sale by some of them. The Oregon nurseries can doubtless supply trees of the Lambert. The Oregon fruitgrowers have found both kinds good for market purposes.

The Centennial cherry is a little larger than the Napoleon and of the same color, being light pinkish red when fully ripe, but is often sent to market when yellowish with a pink cheek. They are about alike in flavor.

This Fruit Export business which was so encouraging to the Cape fruit growers, was suddenly interrupted at the outbreak of the war, when all lines of steamers were needed for the carrying of soldiers and war supplies, but now the Union Castle Line has again begun to bring fruit from the Cape, and the season for peaches will continue during the months of January, February, March and April. For plums the season will be about the same, and the varieties so far grown at

the Cape for the export trade is the Burbank. This may be a hint to us in Canada, for these Japans are not in very great favor in our markets, and if they are in demand across the sea we shall be pleased to unload them on the other side.

Golden Russet apples are just now, January 25th, bringing the highest price in Covent Garden market, next to the Newton Pippin. The latter sells from 25 to 35 shillings a barrel, and the former at from 28 to 30 shillings.

Does not this point to the importance of this variety which grows to such perfection in the southern parts of our province, and indeed succeeds well as far north as Orillia, in the County of Simcoe.

Fertilizers.—At the the Wentworth Institute, held at Bartonville, on the 19th of February, Mr. Duncan Anderson, of Orilla, claimed that no commercial fertilizer could equal barn manure, because the soil must have humus or decayed vegetable matter for the regulation of temperature and of moisture. One ton of barn manure contains 9 lbs. nitrogen, 5 of phosphoric acid and 10 of potash, all of which can be purchased in a commercial fertilizer for \$1.80, but the former was the most valuable because of the 500 lbs of vegetable matter which it contained.

Mr. Anderson emphasized the same points dwelt upon by Prof. Jordan before the New York State fruit growers—such as soil moisture, and tillage to preserve it. "A plant," said he, "has life just like an animal; stunt it at the beginning, and it never fully recovers." The following three points for farmers which he gave are also valuable to fruit growers:—1. It is impossible to make a seed bed too fine. 2. The fertility should be kept near the surface. 3. Never bring up the cool, hungry sub-soil to the surface.

Mr. Cameron Gage, of Bartonville, gave

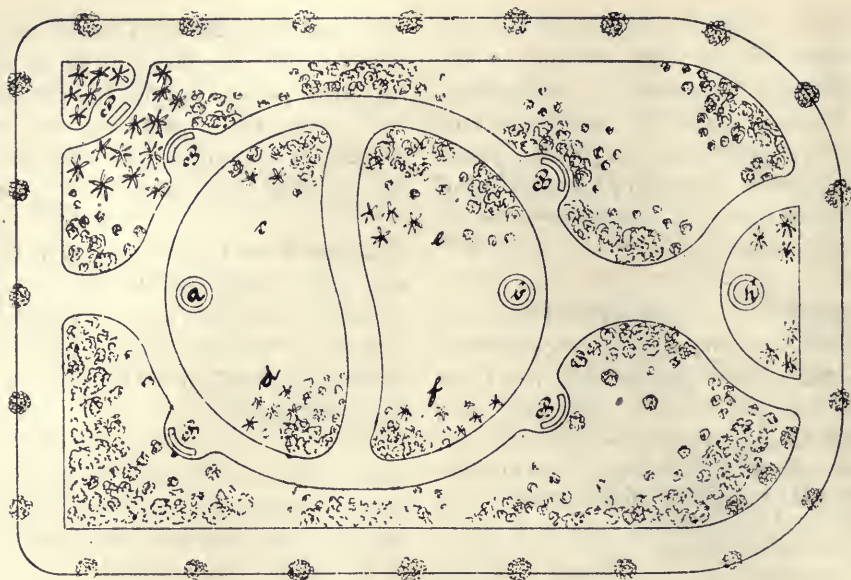


FIG. 2256. SMALL PARK.

an address on Market Gardening, dealing more especially with celery growing, which he claimed could be made a financial success, if certain conditions were observed such as location near a city or convenient shipping point; suitable soil, such as black muck in a drained cedar swamp and abundance of manure. Mr. George Awrey acted as chairman and Mr. Erland Lee, of Stony Creek, as secretary.

A Small Park.—So many of our Horticultural Societies are desirous of doing some works along the various lines of civic improvement, that we give herewith a design from *Moeller's Deutsche Gaertner-Zeitung* of an attractive "Pleasure Garden" in the Kaiserstrasse in Mainz. A small park of this kind could easily be laid out in any of our Canadian towns or villages; the trees, shrubs and plants could be selected to please the taste of those most interested, and the result would be great comfort and pleasure to many who are not fortunate enough to own pleasure grounds of their own:—

To the left of the central space of open turf at *a*, is a clump of *Celosia cristata*,

and across the green at *b*, is a mixed group of flowering plants and shrubs. At projecting points, formed by the curves of the walks, are placed single specimens of pines or other needle-bearing trees. A group of palms in a shady nook are designated by *c* and farther along are fuschias and *Erythrina Crista-galli* with its coral-red flowers. Group *d* is planted principally with *Caladiums*, *Aralias*, and *Cannas*, and at *e* is a little rock-garden adorned with *Musa Ensete* and twining and flowering plants. Opposite this at *f* stand tall heliotropes, and *B* shows the park seats. Between these plantings as well as in front of the wooded parts which border the park and give it a secluded atmosphere, are flowering shrubs, making a refreshing spot in the heart of a great city.

Protection for Men Spraying.—There is no more unpleasant work for the fruit grower than spraying with copper sulphate solutions, which are very poisonous. Nothing is better than a sailor's oilskin suit, for it is light, and is water and wind proof. A hat or cap should be worn that will protect both the eyes and the back of the neck, and long rubber gloves for the protection of the hands. If necessary also glass or mica goggles may be used for the eyes.

AN INTERESTING HOUSE MEETING.

A MEANS OF DEEPENING THE INTEREST OF THE MEMBERS IN THEIR SOCIETY.

A GOOD WAY TO SPREAD INFORMATION.



N interesting house meeting of the Grimsby Horticultural Society was held on Thursday evening, the 6th of February, at Mr. A. H. Pettit's. In the absence of Mrs. Palmer, the President, and Mr. Burland, the Vice-President, Mr. A. H. Pettit was asked to preside. Two papers were read and discussed, one by Mr. L. Woolverton, on the Garden and Lawn, and one by Mr. J. F. Brennan, on the Cultivation of the Peach Tree.

The Peach Tree.—Twelve feet apart was advocated as a proper distance apart for planting peach trees, providing they were properly shortened back. This should be done at any time between the harvesting of the fruit, and the month of April following. There is no reason, said Mr. Brennan, why a tree should have a long useless trunk and bare poles of branches, to a height of ten or fifteen feet from the ground, before you come to the bearing wood. That is just so much waste. From the beginning, prune back your trees so that they must head low down, and throw out fruit spurs along the whole way. You need not cut them back all at once, if they are now too high, but you can renew a part at a time. The proper thing, however, is never to allow them to mature such bare poles of limbs. Trees so trained will live to a greater age than those which grow as they choose, it keeps up the production of fresh, young, growing cells, and the vigor of the tree is maintained almost indefinitely, instead of dying out in ten or fifteen years. Another advantage of my method is that you can employ women pickers. Now, in peach season, men are

usually scarce, because of the rush of farm work, and, if your trees are high and the fruit so far up that you have to use a twenty or thirty feet ladder to reach them, you must employ men; but if the fruit can be reached either from the ground or from step ladders, women will do the work. And a good feature of this is that they make better fruit pickers than men; they seem to know just when a peach is ready; and they handle it with greater care than men do.

"I have never pruned my peach trees very much after they are four or five years planted," said Mr. E. J. Woolverton, "up to that time I prune carefully in order to produce a well formed tree; after that I let them have their own way, simply cutting out dead or useless wood. I believe however the system of shortening is an excellent one."

Mr. Adolphus Pettit, who grows about the finest peaches about this section said, "I would not plant my trees so close as twelve feet. I do not shorten back my trees, but even if I did, I do not think I could keep them so small as to go in a square twelve feet across. I would plant them eighteen or twenty feet apart."

Mr. J. M. Metcalfe plants his trees about seventeen feet apart each way, and counts that quite close enough.

"I would like to know," said Mr. Rutherford, a gentleman from Hamilton recently engaged in fruit farming at Grimsby, "whether it is possible to renew an old tree and get an entirely new top."

"Yes," said Mr. Adolphus Pettit, "I have had a tree with its limbs broken down with

fruit in September so badly that they had all to be cut off, and as a result, the following season I had a magnificent growth of young wood, and now I have a splendid tree with all the vigor of youth."

The writer remarked that he had practised shortening back his peach trees for twenty five years, and always found increased vigor as a result. He had noticed the Essex peach growers going over their orchards in July with their pruning shears, and cutting back the young wood at that time. They claimed that they could thus accomplish a double purpose, first, the shortening back of the wood growth and so keeping it more in bush form, and, secondly, thinning out the young fruit which was then well formed and set.

Climbers.—After Mr. L. Woolverton's paper on the Garden and Lawn, the discussion turned upon the best climbing vines for the verandah. He instanced the Virginia Creeper as one of the most vigorous and satisfactory for old houses, when it was desirable to cover up as much as possible, and to afford dense foliage; but to his taste it was too rampant for a good house, it covered everything, and although very pretty in autumn with its colored foliage, it was of late years badly infested with a sort of thrip, which was very objectionable, and rendered the foliage unsightly in summer time. He commended the *Akebia Quinata* as a most excellent climber. It was a little slower in growth, and its flowers were very small and inconspicuous, but after a few years it became quite vigorous, and the foliage was

of a beautiful dark, glossy, green color. It was hardy in the region of the peach. For stone or brick walls no climber equalled the Japan Ivy. Hall's Honeysuckle was another climber which he preferred to the Virginia Creeper, it was not a very strong grower, but it was almost evergreen, and very pretty. Clematis Virginiana was a very hardy climber, which he had found away north in Algoma growing wild, but it was rather too vigorous; and required too much attention to keep it within bounds. C. Jackmanni and C. Coccinea were two of the finest ornamental kinds, but the wood of those was renewed every spring from the root.

"I think," said Mrs. A. G. Pettit, "that the *Cobea Scandens* is the best annual climber. It was given the members of our society last year and everyone was delighted with it."

"I think," said Mrs. J. W. G. Nelles, "that the *Wistaria*, given by our Society two years ago, is a most satisfactory climber. A vine several years old in a neighbor's house produces great bunches of beautiful flowers every year."

A Song.—A pleasing feature of the evening was the singing of *Annie Laurie* by Mrs. Dr. Clark of Hamilton. This old song was rendered so beautifully that everyone was charmed with it.

We commend monthly house meetings to all our affiliated Societies as one of the most delightful ways of increasing the interest in their work, and at the same time giving the members both pleasure and profit.

Peach Curl is caused by a fungus, *Exoascus deformans*, a fungus which is much more serious if rains or cold weather prevail at the time the trees are leafing out.

The efficiency of sprays in checking the curl is due to the fact that the spread of this fungus is due to the spores, and not to a perennial mycelium, as was at first supposed.

THE NOVA SCOTIA FRUIT GROWERS.

Apples, according to Mr. Bigelow in his recent address before the Nova Scotia Fruit Growers' Association, are the principal fruit crop of that province and the total yield for export in 1901 has been about 300,000 barrels. Strange to say the English market has been the least satisfactory; the famous Gravenstein, sold in Liverpool netting the growers only \$2.00 a barrel, while this variety has sold in the American markets as high as \$4.00 and \$5.00 a barrel. Another singular thing noticed by Mr. Bigelow, is that apples have been shipped to England via Montreal at less cost and have arrived in better condition than when shipped by the much nearer route via Halifax.

The Transportation Problem was taken up by Mr. P. Innes, who complained that it actually cost less to bring apples from Ontario for the local trade, than to move them within the province of Nova Scotia. Comparing the freight on flour and apples he said:

All tariffs are governed by the value and quantity of goods carried. Apples go third class at seventeen cents per 100 lbs., while flour goes fifth class at ten and one-half cents in car lots. The development of Nova Scotian trade had grown immensely. Apples might be worth \$1.50 per barrel, flour \$3.00 to \$4.00. The difference was made in the quantities carried and the charges ought to be reversed. It was a glaring injustice that apples should be carried at an average charge of twenty-five per cent. above flour. Other associations were looking for relief in this matter and we should fall into line. He would, therefore, submit this motion again, hoping that the Association would act in the present instance to better advantage than they previously had done.

RESOLUTION.

Whereas, The Canadian Freight Rate Classification was framed at a time when

the apple production of the country was comparatively limited, while prices were high; and

Whereas, Since that time production has enormously increased, while prices have been continuously falling; and

Whereas, Apple growing has become an important industry in western Nova Scotia, the production averaging 500,000 barrels annually; and

Whereas, The said freight classification and any modifications or amendments thereof have to be submitted to the sanction and be approved by the Governor-in-council; therefore

Resolved, That this classification does not meet the altered circumstances, and is unfair and oppressive to the apple growers and shippers of the province, and that we do respectfully memorialize the Governor-in-council to cause the said classification to be amended by removing apples from the third and fifth classes to the fifth and eighth classes respectively.

Apple Packing was illustrated practically by Mr. Carson of Meaford, Ont., by the aid of two assistants, using three barrels of Baldwins and a full set of appliances. He advised first to secure enough uniform fruit for facers, i. e., the end of the barrel. With nippers remove the stems to prevent marring or breaking of the skins; this induces decay. In facing put medium sized fruit in the outside row; next circle, place a size larger and aim throughout to secure a face which will be an index of the barrel. Set the barrel on a low platform for easy working, and in securing the hoops use short nails to avoid marring the inner surface of barrel. In filling, a basket with round ends is most easily lowered into the barrel. Instead of having a "double facer," merely back the spaces of the first layer with the red side of the second. In filling put the barrel on a plank always. Shake to secure compactness.

NO. TWO STANDARD EXPLAINED.

Asked as to the standard for No. 2, Mr. Carson read from the Ontario Exporters' Bulletin, which required an apple hand-picked from the tree, perfect in color and quality, and not smaller than $2\frac{1}{4}$ inches in diameter. In Russets, he thought the standard might be reduced to 2 inches.

In finishing arrange for two layers laid stems up. Apples, like eggs, will stand most pressure at the ends. Place a pad on on the second row and shake the barrel by racking—i. e., rocking back and forth on the bottom without raising clear of the plank. This is most peculiar work. Remove the pad and place in the face layer, nipping stems and grading as before. This row should stand just above the edge of the barrel. Only one man should be permitted to empty baskets and shake the barrel. Put on a layer of paper. Knock off the top hoop and apply the press after the head is in position. Run this down carefully. Just here Mr. Carson advised the use of good presses with steel arms and double threads. Use a hatchet for driving nails only. Never hit a head with a hammer. Put it in with the press. If properly shaken, this can be done nicely. Ship at once on packing.

The barrel was then opened and exhibited before an intensely interested audience.

We would not favor Mr. Carson's advice about using more than one size in packing. In our experience, always, a uniform size throughout a package tends to bring a higher price than mixed sizes.

Tillage in fruit growing was emphasized by Prof. Bailey of Cornell University, who believed that ploughing in an orchard should cease after five years, and, instead, the aim should be to produce a dust mulch by surface tillage with a spade harrow and grape hoe. Cover crops he counted important to furnish humus. He recommends fall vetches for this purpose, but would not allow them

to grow long in spring. He would put them down with a gang plough, turning a shallow furrow, not over four inches deep.

Land worked early in spring should not require deep ploughing oftener than once in every six or seven years. Rye had been a success as a cover crop with him. No land is too poor for it. Hence it is a good thing to begin with. He usually drills in 400 or 500 lbs. of acid-phosphate with the rye in the fall. He thought highly of crimson clover, except that in some cases it induces too rapid a wood growth. This introduced the question of pruning, but tillage and pruning must be considered together at a later time. Sod is now a thing forgotten in orchard culture.

Commercial Fertilizers were not needed in an orchard not in bearing, in ordinary land; but instead, plenty of tillage "hot ploughshares;" with sufficient tillage, he doubted if commercial fertilizers were very often needed.

Apple Tree Management had changed according to Prof. Bailey, since the days when the production of cider apples was an important object, and when any kind of an apple was good enough. Then neither fertility of soil nor high tillage were important. Now, the production of high grade fruit is the aim of the fruit grower; therefore the conditions of success in this have been emphasized, viz., first spraying, next tillage, then cover crops, and now possibly the question of the hour is pruning. Sometimes it might be necessary to till an apple orchard right up to harvesting fruit, in which case barn yard manure had to be depended on to supply humus; but if manure was scarce, rye could be sown as late as October 1st.

Planting Entirely For Export Prof. Bailey counted a mistake; because often our home markets would pay higher prices. For example the King was a most desirable apple, and one that had originated in Tompkins County, New York State, and yet he could not buy in that very county a first class

barrel of that variety ; they had all been shipped away.

Cover Crops was the subject of an address by Prof. Shutt, whose address is summarized as follows,—

There was perhaps no subject more prominent before fruit growers to-day than that of cover crops. The conditions were very exceptional when a profitable orchard could be kept in sod.

It was now quite generally conceded that a system of clean culture and cover crops was the best treatment that could be given the commercial orchard.

There is no cast iron rule about this system; the practice may be intelligently modified according to soil, climate and size of trees, etc.

What is the usual plan? The orchard is kept in clean cultivation until July, then a crop, usually one of legumes, is sowed and mowed down in the autumn, allowed to start next spring, then plowed down and clean cultivated as in the preceding year.

The Object of the Cover Crop.

1. To increase the organic matter and nitrogen in the soil.

2. By the system of clean cultivation and a dry earth mulch to conserve the moisture for the growth of the trees. The legumes alone have the power of appropriating nitrogen and storing it in the soil.

The increase of humus is also an important matter, for there is no part of the soil which has more important functions than humus. It is, first, a great absorbent of moisture. almost any crop will use up between 200 and 300 tons of water per acre. It is very important to hold this water supply there. More crops suffer from lack of water than from lack of food plant. This is especially true in both the lightest lands and heaviest clays, and in these the supply of humus is especially needed.

Humus indirectly is also a source of plant food ; it is nature's store house for nitrogen.

Before the plants can use this nitrogen the supply must go through the process of nitro-fication, and humus holds it ready for this process.

3. Humus also contains a certain amount of phosphoric acid and potash. Decaying humus yields these substances in a partially digested form 4 to 5 times as much as the ordinary potash in the soil, by reason of its available form. The amount of potash and phosphoric acid in a soil which is assimilable in muric acid is what measures the fertility or crop-producing power of soil.

In fact it is a general rule that the fertility of the soil is largely governed by the supply of humus.

4. Humus also encourages bacterial life, the presence of which is most essential to the conversion of the plant food in the soil into a form in which the plants can absorb it. Corn crops increase the amount of humus in the soil perhaps from 8 or 10 per cent. to 15 per cent. An experiment had been tried at Ottawa this year, where the result of a corn crop had been shown.

There was a great difference in corn crops as between buckwheat and rye on one hand and clovers and legumes on the other. The former were consumers of nitrogen, and the latter absorbed it, storing it up in the roots in the ground.

The experiments show that all the way from 60 lb. to 125 lbs. of nitrogen per acre in one crop of mammoth clover can be got in the ground—as much as could be got in 10 tons of barnyard manure. Then there was the humus additional. There were also about 45 to 50 lbs. phosphoric acid and 115 lbs. potash.

The clover gets the nitrogen from the air in the soil; the better the soil has been tilled the better the clover will grow. This nitrogen absorption is due to bacteria.

The phosphoric acid and potash are of course merely worked over, and they are left in a more available form than they were previously.

The McPike Grape, which was shown at the Pan-American by The Silas Wilson Co., was originated by H. S. McPike, of Alton,

Ill. It is a seedling of Worden, of the same season, but larger in berry. The skin is tender and the pulp melting.

THE FALL FAIR AS A HORTICULTURAL EDUCATOR.

BY PROF. H. L. HUTT, O. A. C., GUELPH.



HE fall fair has not, as a rule, been looked upon as one of the branches of our educational system ; but it is, nevertheless, one of the farmer's schools where valuable information may be imparted, and lessons of the most practical kind may be learned by means of object lessons.

There has been much discussion of late about increasing the educational value of these fairs by the employment of expert judges—men who could not only award the prizes properly, but could for the benefit of those present give good reasons for their decisions. This would certainly be a move in the right direction, but before any material improvement in this way can be made along the line of horticultural education, we believe it will be necessary to begin further back, and revise or remodel a majority of the prize lists ; for, unless the prize list is arranged to bring out a good display of fruit of the right kinds, the expert judge, no matter how expert he may be, will be seriously handicapped in his efforts to impart information.

My attention was first called to the great necessity for improvement along this line last summer, when I was asked to revise the horticultural section of the prize list of one of our leading county exhibitions ; and it struck me very forcibly that if so much revision was necessary in the case of one of the leading exhibitions, what must it be with many of the smaller fairs, where less attention is given to the prize list ?

Since then I have taken the trouble to examine carefully a large number of the lists from all parts of the country, and I can assure you the greater number of our fall fairs are coming far short of providing the

education they might from a horticultural standpoint.

I would like, therefore, to offer a few suggestions as to how these fairs might be made of much greater value to the people of all parts of the province, by spreading reliable information relative to fruit growing.

I. Every prize list should be made to encourage the production and exhibition of every class of fruit which may be successfully grown and shown in the section. In the most favorable fruit sections, many of the lists are made to include most of the fruit grown there, and which are in season at the time of the fair, such as apples, pears, grapes, plums, peaches, quinces, etc., but the greater number of them stop short at apples, pears, and grapes, and make no mention of any other kinds of fruit, whatever. Now this is not because other kinds of fruit cannot be grown, for even in the least favorable fruit sections of the province plums of the American type are quite hardy and can be grown to perfection. In some cases where the fairs are held late in the season, it may, of course, be difficult to keep such fruit in condition till fair time, but in a good cool cellar many of the latter kinds might easily be kept for some time. I am inclined to believe it would be a wise plan to place on the lists even the earlier or more perishable fruits, such as strawberries, raspberries, gooseberries and currants, and allow these to be shown in preservative fluids in ordinary gem jars, so as to show the fruits as nearly as possible in the natural condition. Mr. C. C. Caston made an exhibit of this kind at the Barrie Fair a year ago, which attracted great attention, and which was

instrumental in introducing improved varieties into more than one farm garden.

2. In each class of fruit, a few of the leading varieties best adapted to the section, should be named on the list. In fact these lists should be so carefully prepared that they might be taken as a reliable guide by intending planters. If confidence were established in the reliability of these lists, no better means of education along these lines could be given than the annual display of varieties brought out at the fall fair. The list of varieties for which prizes should be offered would naturally vary with the different sections of the country, as a variety that would be excellent for one section might be entirely unsuitable for another. The reports of our Fruit Experiment Stations should be a guide in preparing such lists. In the majority of cases the lists at present are either false guides, or no guide at all. In one list only three classes of fruit are called for, and these are collections of apples, pears and grapes, not a single variety being mentioned. On this same list 34 breeds of chickens are named, there being 83 sections for the entry of poultry. This list is a credit to the enterprise of the poultry fanciers of that section; but if so many classes and entries are necessary for poultry, of which not one farmer in twenty has a pure bred flock, and those who have, keep, as a rule, but one breed, how much more necessary that some encouragement should be given to the exhibition of fruits, of which most farmers have not only several kinds, but a number of varieties of each kind? On other lists where varieties are mentioned, lots of old worthless kinds, which should have been discarded years ago, are still being encouraged by prizes being offered year after year; while lots of valuable varieties of more recent introduction are never mentioned. In such cases the lists are false guides and are doing positive harm.

3. Offering prizes for largest collection of

varieties should be discontinued. The aim should be to encourage the planting of fewer varieties, and not large collections of varieties, many of which are worthless. It is freely admitted by those in the export apple trade that the mixed shipments of many varieties in small lots are injuring our reputation in the British markets. What that market wants is a few of our best varieties in larger quantities. The fall fair exhibit of varieties, as brought out by a good prize list, should be an education as to the requirements of the local and foreign markets. The Goderich prize list is excellent in this particular. In apples it calls for three small collections, viz.: 6 best dessert varieties; 6 best cooking varieties, and 6 best export varieties.

4. Little or nothing is gained and much dissatisfaction and hard feeling is often engendered by trying to class varieties as either autumn or winter. Nearly every fall disputes are referred to us to settle whether the Ribston, or Wealthy, or some other variety should be classed as fall or winter, whereas the classing of it as either one or the other will not in the least alter its season of maturing. In southern sections, it will mature as usual in the fall, while in northern sections it may keep most of the winter; and, as to just where the dividing line would be in each case would be difficult to determine; and when determined would make very little, if any, difference. In preparing a list of varieties they should, of course, be selected so as to cover the season of maturing from early to late, in which case there would naturally be most of the long-keeping sorts; and in judging collections, the seasons covered by the varieties shown be taken into account by the judges.

5. At the end of each list of varieties of each class of fruit there should be one entry for "any other named variety." This permits the exhibition of good varieties which may not be mentioned on the list. Following this should

also be another entry for the "best seedling variety." This would encourage the bringing out of local seedlings, which often prove more valuable for a particular locality than some of the older named sorts. The prize in this case should not be awarded, however, unless the seedling is deemed worthy of propagation.

6. The rules for the abbreviation of the names of varieties advocated by the American Pomological Society are worthy of adoption in Canada. This would not only greatly simplify the lists, but would be a very desirable education in the proper naming of varieties. For example, we would then have :

Blenheim, not Blenheim Orange or Blenheim Pippin.

Colvert, not Culvert or Culbert.

Fameuse, not Snow. Grimes, not Grimes' Golden.

Hubbardston, not Hubbardston's Non-such.

King, not King of Tompkin's County.

Ribston, not Ribstone's Pippin or Ribstown Pippin.

Anjou, not Beurre d'Anjou.

Duchess, not Duchess d'Angouleme, etc.

7. In every prize list the classes and names of varieties should be arranged alphabetically.

This is in itself a small matter, but it has been almost entirely overlooked in the lists, as, with but one or two exceptions, nearly all of the many lists examined have made no attempt at alphabetical arrangement. This would take but little extra time when preparing the lists for the printer, and would aggregate an immense saving of time and annoyance and mistakes on the part of the exhibitors and judges who use the lists. One should be able to see at a glance at any list whether any particular variety is on it or not.

These, then, are a few of the improvements I would suggest, which would help to make our fall fairs of more practical value to those interested in fruit growing, and much of what has been said relative to fruit growing might be applied equally well to the other branches of horticulture, viz., vegetable gardening and floriculture; but we shall say nothing more about these at present.

In conclusion I might say that I shall be pleased at any time to assist those who have the matter in hand in preparing suitable lists and making the improvements suggested.

Tapping Maple Trees.—There are some fine points to be observed even in such a simple matter as tapping a sugar maple tree. Here are five points, just for instance, given us by the Vermont Experiment Station :

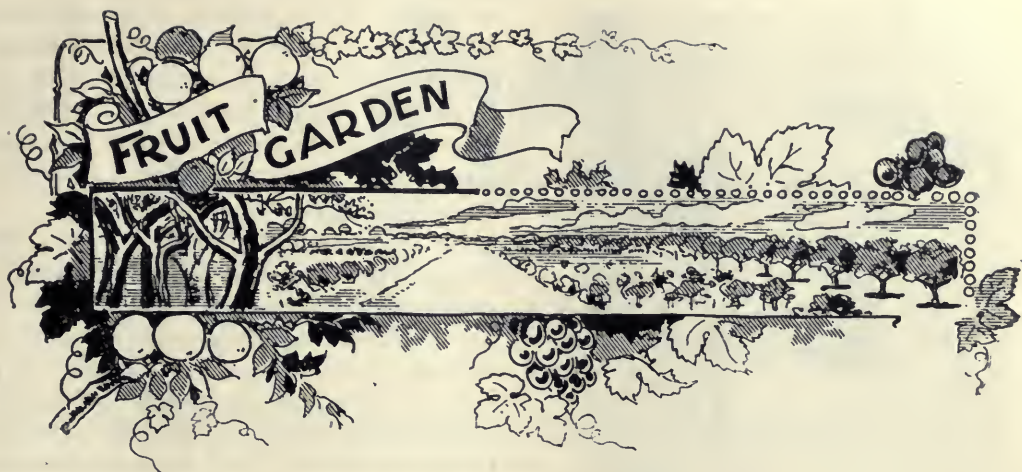
Point 1.—Only a sharp bit should be used,—one that will make a clean-cut hole.

Point 2.—The hole need not be more than three inches deep. The investigations of the Vermont Experiment Station have shown that hardly any sap comes from a greater depth.

Point 3.—The hole should be carefully cleaned of chips, because even a very small quantity of waste matter will clog the spout, obstruct the flow of sap, and seriously reduce the yield of sugar.

Point 4.—A spout should be chosen of such a pattern as will allow the freest flow of sap. It should interfere with the wood tissue of the tree as little as possible. The bark, rather than the wood, should play an important part in holding the spout firm.

Point 5.—The spout should be strong enough, and its hold on the tree firm enough, so that it will safely support the sap bucket. Moreover the spout should be easy to insert and easy to remove. The various spouts commonly sold at the hardware stores differ materially in their merits when judged by the foregoing tests. The sugar maker will do well to examine them all carefully before buying his supply for the coming season.



TIMELY NOTES ON SPRAYING.*

BY PROF. W. LOCHHEAD, O.A.C., GUELPH, ONT.

I.—Peach Leaf-Curl.

PEACH Leaf-Curl was very prevalent in the Niagara peach orchards in the spring of 1901. Very few orchards escaped, and it was not uncommon to find large areas of peach trees defoliated by midsummer. The writer had occasion to visit the Grimsby and St. Catharines districts several times during the early part of the season, and to observe the attitude of the peach-growers to the question of remedial treatment. The belief was current that spraying had little influence in combating the disease, and many growers expressed the opinion that the trouble was caused altogether by unfavorable weather conditions, and not by a fungus.

It is true that Peach Curl is most injurious when the spring opens with cold wet weather and sudden changes of temperature, but it should be borne in mind that such conditions favor the development of the fungus, the real cause of the Curl, and render the peach more susceptible to attacks by the

same fungus. It has been shown experimentally that the best temperature condition for the growth of a fungus like Peach Leaf-Curl is much lower than that for the best development of the peach. Excessive moisture, while not hurtful to the fungus, is hurtful to the peach, as it saturates the tissues with water, and renders them soft. While growth may be rapid, the new cells will have thinner walls, and there will be a decided decrease in the activity of the living substance due to the excessive amount of water and the small amount of oxygen absorbed.

In the consideration of this disease, then, it must be understood that the fungus is the real cause of the trouble, and that the weather and other conditions cannot by any means produce the disease without the fungus.

There are two possible ways by which the peach leaves become infected: 1. By threads of the fungus which winter over in the year-old branchlets, and 2, by spores of the fungus in spring. The first view is the one which was generally held by botanists up to

*Notes from the Biological Department, Ontario Agricultural College.



FIG. 2257. PEACH CURL, UNTREATED LEAF.

1900, and was largely instrumental in giving rise to the belief that spraying was of no value as a remedial treatment. According to this view, the threads of the fungus in the spring extended into the leaves of the young shoots, and there formed a net-work of threads which finally caused malformation and death of the leaves. If this view be the correct one, it is manifestly of little or no value to spray, for the fungal threads are within the plant and beyond the influence of the Bordeaux.

Frequently, however, reports were received from reliable experimenters that the Bordeaux mixture did exert a controlling influence on the disease. Messrs. Craig, Orr and A. H. Pettit obtained satisfactory results in Ontario in 1897, 1898 and 1899, while Prof. Bailey, Dr. Duggar and Dr. Murrill reported excellent results in New York. Other instances might also be given, but these are sufficient to show that probably the disease was prevented from spreading to the leaves because the spores did not have an opportunity to germinate.

Newton D. Pierce, of the Department of Agriculture, Washington, D.C., began the investigation of the Peach-Curl problem as far back as 1893, and carried on an elabor-

ate series of experiments in co-operation with peach growers in many of the states. His results were very conclusive as to the value of Bordeaux mixture as a remedial treatment, and he does not hesitate to state that the disease can be efficiently controlled by early spraying.

Mr. Pierce is of the decided opinion that the main source of infection of the leaves in spring is the spores, which find their way to the leaf buds, for over 90 per cent. of the infections can be prevented by a single spraying. Success depends upon an early application of the Bordeaux. The first spraying should be done in April when the buds are beginning to swell, or from one to three weeks before the opening of the blossoms in the spring. If much wet weather follows, another spraying should be made after the blossoming period.

The writer is quite aware that many orchardmen may be quite skeptical in this matter of Peach-Curl control, but facts are accumulating so rapidly that there should be but little doubt that Bordeaux mixture, applied at the **proper time**, applied in the **proper way**, after **being properly made**, will control the Peach Leaf-Curl.

The peach industry is a large one, and



FIG. 2258. PEACH CURL, TREATED LEAF.



FIG. 2259. Proper method of preparing Bordeaux mixture. The stock solutions are made up and kept in barrels 1 and 2; these are diluted in barrels 3 and 4, and finally mixed in the spray pump barrel 5.

should not be allowed to languish for the want of the application of a remedy. The remedy is known, apply it.

II.—Bordeaux Mixture.

Many speakers at the meetings of fruit growers report that the want of care in the preparation of the Bordeaux mixture is the main reason why better and more uniform results are not obtained in the spraying of orchards for the prevention of fungus diseases. As spraying operations will begin next month, a few notes in the imperative form regarding the preparation of the Bordeaux mixture will not be out of place here.

1. Use nothing but fresh quick-lime. The lime should be slowly slaked by the gradual addition of water.

2. Never mix the concentrated stock solutions together.

Stock solutions of milk of lime and blue-stone are usually prepared and kept in different barrels in readiness for spraying operations. In barrel No. 1, 25 lbs. of fresh lime are gradually slaked with 25 gallons of water; in barrel No. 2, 25 lbs. of copper sulphate or blue-stone are dissolved in 25 gallons of warm water. (Fig. 2259).

These are the stock solutions: Each gallon of milk of lime contains one pound of lime, and each gallon of blue-stone solu-

tion contains one pound of blue-stone. When we wish to make up a barrel of Bordeaux solution, all that is necessary to do is to take out 4 gallons of milk of lime, and 4 gallons of blue-stone solution, and either dilute each in separate barrels in 20 gallons of water before mixing in the barrel attached to the spray-pump, or else pour each separately into the barrel in which are already 32 gallons of water. The first method, that is, where the four gallons of the stock solutions are diluted in separate barrels to 20 gallons, before mixing in the barrel attached to the spray pump, is the preferable one.

If the milk of lime and blue-stone are mixed in the concentrated form, just as they are taken from the stock solution, a precipitate of a flakey nature will soon settle out, and either fall to the bottom or clog the nozzle. It is also believed that the fungicidal value of the copper and lime compound formed is not as great as that formed when the solutions are mixed in a dilute form.

3. Test the Bordeaux to find out if sufficient milk of lime has been added. This is most readily done by means of the ferrocyanide test. A saturated solution of this substance can be purchased at any druggist's for a few cents. In testing, place some of the Bordeaux, which has been thoroughly stirred, into a saucer, and add a few drops of the

ferrocyanide. If sufficient lime has been used no discoloration will appear, but if insufficient, a dark brown color will be produced.

4. Always strain the milk of lime to prevent gritty particles from clogging the nozzles. The milk of lime can be readily strained if a large 20-mesh brass wire strainer is fitted over the mouth of the barrel in which dilution takes place.

5. Use a fine nozzle; do not soak or drench the tree. The liquid must be put on as a fine mist, and the spraying of the stems, leaves and fruit must not go beyond a complete bedewing, for, if more is put on, the fine dew spots will run together and begin to drip.

Lime is very variable in strength and the ferrocyanide test should be made every time a new "batch" is made up. Too much lime does not harm the Bordeaux to any extent, but it will clog the nozzle, and this is a very important matter in actual practice.

III.—Pure Paris Green.

A prominent fruit grower told the writer, not long ago, that some simple tests for determining the purity of Paris green would be welcomed, for he believed that some of the Paris green on the market was adulterated

and unsuited for purposes of spraying. Bulletin 68, Illinois Agricultural Experimental Station gives the following as the requirements of a good Paris green :

1. It should be a wholly dry and impalpable powder. Grittiness and caking are indications of adulteration.

2. It should have a bright, light emerald green color, which should not whiten or become dull in the streak left in allowing a small sample to slide down a clean glass plate, when tilted and gently tapped.

3. It should be entirely soluble in ammonia. Any residue is an adulterant.

4. Under the microscope it should be seen to contain only a small trace of foreign matter, and should consist of *clean* green spheres, wholly separate from one another. Aggregation into masses is evidence of careless manufacture.

5. Paris green should contain not less than 50 per cent. of arsenious oxide, of which not more than 4 per cent. should be in the fresh state or uncombined with copper.

Requirements 2 and 3 may be readily tested by any person, and do not take much trouble. Every purchase should be tested, for if it is adulterated to any extent, the work it will do will be correspondingly decreased.

THE REINE HORTENSE CHERRY.

SIR,—In your cherry report, which by the way, is of great value to every intending planter, you place the Reine Hortense cherry among the first of its class.

Your estimate of that fine cherry has been fully verified in my experience. I have a tree eighteen years planted, that is doing very well indeed. Almost every year its slender branches are bending with its load of fine fruit, although frequently during those eighteen years the temperature has fallen twenty and more degrees below zero.

The fruit is very large and nearly sweet, and it is the finest flavored of the class of Duke cherries. The tree is very distinct

and beautiful in its habit of growth, resembling, as it grows older, the weeping willow; its slender branches drooping almost to the ground. Those of my acquaintances, who have sampled them, agree that in flavor and size of fruit, combined with beauty of tree, it is indeed a wonderful cherry. No garden or orchard should be without it.

The Reine Hortense will add to the beauty of a home and its juicy fruit to the health and pleasure of a family. Any one setting out cherry trees in the spring should not forget to include the Reine Hortense.

Galt, Ont. WALTER M. TURNBULL.

FIRST LESSONS IN FRUIT GROWING—IV.

BY PROF. H. L. HUTT, O. A. C., GUELPH.

Forming the Tree Top.

IN the last lesson, we studied the structure of the tree trunk, and learned something of the way in which new growth is added each year.

In this lesson, we shall look into the top of the tree and note some of the peculiarities of the branches composing the head.

The formation of the head of most of our fruit trees is begun in the nursery by cutting back the top of the young tree at whatever height it is desired the head should start, and by lopping off also the lower branches nearly to the top. Several branches are thus started into rapid growth near the top, and it is often left for the planter when transplanting these trees into the orchard to thin out all but three or four, which become the **main branches** and form the frame-work of the tree.

From the main branches, which are situated upon the trunk, are thrown out numerous secondary branches, which subdivide again into smaller branches, until a branchy top is formed.

What Determines the Shape of the Head.

The form of the head depends largely upon the habit of growth of the branches, which varies greatly, not only with the different species of trees, but also with the varieties of any particular species. In most kinds of pears, the branches have a very erect habit of growth, which naturally causes them to form tall narrow heads. In apple trees we see a greater tendency for the branches to spread, although in a few varieties, such as the Yellow Transparent, there is a more or less upright habit of growth as in the pears. The branches of the Northern

Spy have what might be called a curved erect habit, that is, they branch out somewhat horizontally, and then become more or less erect. A horizontal habit of branching may be seen in the Roxbury Russet and Greening, and such trees form spreading flat-topped heads. The two extremes in habit of growth may be seen in the Abundance and Burbank plums; the former grows very erect, while the latter is a sprawling, horizontal grower, the branches of which often become drooping from the weight of crop.

Shoots.

Shoots are branches of one season's growth. In a young vigorous growing tree, the shoots annually formed are often several feet in length, but as the tree becomes older and its vigor diminishes, its energies are turned to the production of fruit rather than wood, and the new shoots are often not more than a few inches in length. In Fig. 2260; at (a). (a.), may be seen the short shoots of last year's growth in a Morello cherry.

The long sprawling shoots in grape-vines and berry-bushes, when matured, and known as **canes**. The term **sucker**, or watersprout, is often applied to the strong shoots which make their appearance on the older branches, particularly after the tree has been severely pruned. Such shoots are an effort on the part of Nature to restore the equilibrium between top and roots which has been disturbed by severe pruning. The term **sucker** is more correctly applied to those shoots which come up around the base of the trunk, or which spring from underground stems or injured roots. The tendency to sucker is much more common in some species than in

Fruit-spurs.

These are short, stunted-looking branches which differ much in appearance and habit of growth in different fruits, as may be seen by the accompanying illustrations.

In apple and pear trees, the fruit-spur makes its appearance first as a prominent bud on wood at least two years old. During the second season, it lengthens a short distance, and bears only a cluster of leaves, but the third season it usually blooms; and, if all goes well, bears fruit. After fruiting, it branches again just below where the fruit is produced, extends half an inch or more, and bears again, and usually continues branching and bearing in alternate seasons. After several years of such growth, the branch may not be over six to eight inches in length, and yet the scars on its sides may show that it has several times produced fruit. Fig. 2261 shows an apple fruit-spur of seven seasons' growth, which has produced four apples, as seen by the large scars at (a). Three attempts at bearing have been made at (b) but the blossoms have fallen without setting fruit, as shown by the small scars; and six strong fruit-buds at (c) give promise of fruit next year.

In vigorous young apple and pear trees just beginning to bear, most of the fruit will be found at the end of the slender fruiting branches from six to ten inches in length, usually in the centre of the tree.

Such branches were shoots that began life with the evident intention of producing nothing but wood and leaves, as has been the custom in the tree, the terminal bud of each has been transformed into a fruit-bud, and Nature has directed their energy to the production of fruit.

When the trees are bare of foliage, the fruit-spurs may often be noticed very much enlarged and swollen. This is quite commonly seen in the Ben Davis and Oldenburg apple trees and also in some kinds of pear



FIG. 2260. Branches of Morello Cherry (half size), showing last year's shoots (a, a) and fruit spurs (b) along the sides of the older wood.

others, and kinds that sucker readily may easily be propagated by root-cuttings.

Fruit Branches.

When trees begin bearing fruit, special forms of branches may be found in them, that are not noticeable in young trees not yet in bearing. These are the branches upon which the fruit is produced. Different kinds of trees have different kinds of fruiting branches with which it is important that the fruit grower should be familiar.

One of the most insignificant-looking branches, yet the most important in its productiveness, is what is known as the **fruit-spur**.

trees, and is due to the storing up of an extra supply of nourishment at that point for the development of the fruit.

The plum and cherry and also the currant and gooseberry have fruit-spurs, but they are quite different for those of the apple and pear. Fig. 2260, shows a section of branch from a common Morello, or sour cherry tree. The larger part of the branch is five-year-old wood, about two feet of the newer wood having been cut off at the top. By comparing this with the apple branch, it will be noticed that it has not the zig-zag habit of growth of the apple branch. The reason for this is that the fruit-buds in the cherry, as also in the plum, currant and gooseberry are not on the end, but are grouped near the end of the spur, and have a leaf-bud in the centre to extend the growth straight ahead.

The peach tree forms no fruit-spurs, although the fruit may occasionally be found on short stunted branches, which have the appearance of fruit-spurs, but these are in reality very short shoots which never bear again.

If a peach tree is examined when in flower or fruit, it will be seen that the fruit is produced from the lower buds along the sides of the last year's shoots. In this fruit, then, the vigorous shoots of this season's growth become next year's fruiting branches.

In the case of grapes, raspberries and blackberries, the fruit is borne on shoots of the same season's growth, which start from last year's canes. In the grape, the fruit is born at two or three joints near the base of the shoot, which grows several feet in length and becomes next year's cane. In the raspberries and blackberries, however, the fruit is born at the ends of the shoots which die with the whole cane after fruiting, and are succeeded by new canes which spring from the root.

The quince bears fruit in a manner peculiar to itself. It does not produce fruit-



FIG. 2261. Apple Fruit-spur (natural size).

- (a) Large scars showing where fruit has been borne.
- (b) Smaller scars where blossoms have appeared but fruit has not set.
- (c) Strong fruit-buds which will blossom next spring.

spurs, like the apple; nor yet along the sides of last year's shoots, like the peach; but it bears the fruit singly on the ends of shoots three or four inches in length, of the same season's growth.

Here, then, we have quite a number of ways in which Nature develops and modifies the forms of branches to serve her purposes in the production of fruit. How important, then, that the man who grows fruit should study her methods, and learn how to work at all times in harmony with her laws.

FERTILITY OF ORCHARDS.

NEARLY one whole morning was given by the Western New York Horticultural Society to the study of soil conditions for fertility. Dr. Jordan, of the Geneva Experiment Station, showed that this was a complex question, and one that did not depend so much upon the amount of fertilizing elements in the soil, such as potash, nitrogen and phosphoric acid, as upon physical conditions which alone could enable the plant to take the benefit of these substances. The important physical conditions were such as texture of the soil, warmth, moisture, etc. Without these conditions, commercial fertilizers were little use. Indeed everyone had noticed that in a dry season no good was perceptible from fertilizers applied.

Water.—First, he emphasized water as the most important of such conditions. The amount of water extracted from the soil by growing crops was much more than is usually supposed; e.g., an acre of oats, in one season, would transpire 2,000,000 lbs. of water.

He explained how water was stored in the soil, each independent particle of moist soil being completely surrounded by a film of water. Soil therefore, whose grains have the largest surface to the cubic foot would retain the largest amount of water. The smaller the soil particles are the more the surface area; thus, as King puts it, a cubic foot of marbles one inch in diameter possesses an aggregate surface of 37.7 square feet, while if the marbles were reduced in diameter to one thousandth of an inch, then the total area per cubic foot is increased to 37,700 square feet. From these differences it is evident that the amounts of water coarse and fine grained soils retain will be very different, and, in general, clay holds more water than sand.

The amount of water retained by the particles will also be influenced by the distance of standing water below the surface. This is what is known as the water level, or the level of complete saturation. This must be below the roots of the plants, to provide for soil ventilation, without which the plant cannot grow.

Tillage is most important in the conservation of moisture. An immense quantity of water is lost by evaporation, in some cases as much as 1 3/10 pounds per square foot per day. This is prevented by an earth mulch or "dust blanket," which breaks up the capillarity that carries the moisture to the surface and allows it to escape by evaporation. It has been proven that scratching the surface one, two or three inches deep will serve to prevent this escape of water, and since, as shown in our notes last month, the amount of nitric nitrogen is greater in soil cultivated three inches deep than a greater or less depth, it would appear well proven that this depth of three inches for summer cultivation is the best for all purposes.

The immense amount of water needed is evident, from the fact that each ton of dry matter produced uses up from two to four hundred tons of water. The production of four tons of Indian corn would probably need from eight to twenty tons of water.

Fruit growers must take care, said the director, not to let useless crops rob the land of the moisture needed by the fruit trees.

Would you grow apple trees in sod? asked some one. Prof. Jordan emphatically opposed such a practice. Hilgard found, from actual test, that a cultivated orchard had much more available water than one not cultivated, in which the grass had robbed the trees of their moisture. Besides, the cultivated trees had made a growth of three

feet in a single season, and those uncultivated only about three inches. Burrill had made a test and found 12 per cent. of water in cultivated soil, and only 8 per cent. in that which had run to grass.

Constant Cultivation is necessary to get the best results ; cultivation that will stir every particle of soil, to a depth of two or three inches. Granted that the soil in spring is saturated, then you should have twelve inches of rain during the season to keep up the supply. Husband this rain by tillage and give your tree the moisture needed for best results. Late fall ploughing tends to increase the supply, while early spring cultivation breaks the capillarity and saves the moisture by an earth mulch. Then every rain tends to compact the surface soil and encourage rapid evaporation ; therefore the importance of at once cultivating the soil, after every rain, to prevent a serious loss of moisture.

Even Cover Crops tend to draw moisture from the soil, and therefore should be ploughed in as early as possible in the spring.

Kellog, of Michigan, had found oats sown in July or August the best cover crop to supply humus to the land and protect the roots of the trees from winter killing, because the oat plants are dead in the spring, and therefore do not draw moisture at that season. Their excellence as a cover crop had been shown by Prof. Taft, of the Michigan Agricultural College.

Hitchings was an advocate of sod for orchards. He had adopted this system for years with success, but every summer he had mulched the trees heavily with cut grass or some such material. He had in this way encouraged his trees to root near to the surface, where they could easily drink in the least shower of rain, which could not percolate down to the deeper rooted trees. His soil was clay loam, very stoney.

Secrets of Success.—This important subject of Soil Fertility was still farther emphasized by Prof. Roberts, of Cornell Uni-

versity. Tillage and cover crops are, in his opinion, the two great secrets of success in orcharding. In clay soil there were too many large and too few small particles, and, for such soil, lime was beneficial because it tended to flocculate the small particles, and thus make it more open. Heavy rains tend to seal up a heavy clay surface, but surface tillage unseals the lumps. If, after a heavy rain, we cultivate and form a loose earth mulch of dry soil, the moisture from below will only rise to the bottom of it. This constant cultivation, besides protecting the soil from loss of water, is a most efficient agent in setting free plant food.

Commercial Fertilizers Not Always Needed.—In fact there is in the soil, locked up, an abundance of plant food, and, if we only possessed the means of unlocking it and getting it out, we could sell fertilizers to the fertilizer dealers at their own price and make enough money to endow a college. The key to this, to a large extent, consists in constant tillage. Cover crops are useful by furnishing humus, and by helping to secure nitrification.

The physical condition of the soil, Prof. Roberts declared, was more important to tree growth than the addition of commercial fertilizers, for unless the soil is in proper condition, fertilizers will be wasted.

The St. Louis World's Fair was spoken of by Mr. A. W. Taylor at the Rochester meeting, who drew especial attention to the grand provision for horticulture in the magnificent combined building for Agriculture, Horticulture and Dairying, which was to cover an area of thirty-three acres—the largest building in the world of its kind.

The Anjou Pear was shown at Rochester by Messrs. Ellwanger and Barry and, as usual, the samples were magnificent. Several commercial packages of this pear were also shown ; they were put up in a box 10 x 10 x 18 inches, each containing forty-two pears. The smallest of these pears measured $2\frac{1}{2}$ inches in diameter, and the

most of them three inches. The average price for these packages in New York, in the month of January, is \$2.00, or nearly five cents a pear.

Among the other pears we noticed P. Barry a winter pear, ripening in May; a variety which succeeds splendidly in California, but averages rather small in the east; and Duhamel de Monceau, which presented a very attractive appearance and is considered a valuable commercial variety. Among the apples shown by the New York Experiment Station were York Imperial, which was of good color, but which averaged barely $2\frac{1}{2}$ inches in diameter and disappointed us considerably after all the reports given us of its value as a commercial apple. Certainly it is away behind the Canadian Spy, in size and in beauty. The samples of Holland Pippin

were fine, measuring about $3\frac{1}{2}$ inches in diameter and showing a fine waxen yellow color.

Campbell's Early Grape was shown in the form of a dried bunch, which must have been remarkably fine; for the note attached by Geo. S. Josselyn, the grower, stated that the bunch originally weighed seventeen ounces.

The Fruit Fly, which infests sour cherries, was mentioned in Prof. Slingerland's report as one of the most formidable of insect pests. No certain remedy has yet been found for it, and it threatens to wholly ruin the business of growing sour cherries. The fruit looks fair, but the housewife finds every cherry infested with a maggot, which fortunately does not affect the sweet cherries.

STRAWBERRIES FOR EXHIBITION.

BY M. A. DIER, OTTAWA.

VERY few realize the large amount of pleasure and satisfaction there is in growing one kind of fruit, and in producing the very finest that can be grown. And not many are willing to adopt modern methods of cultivation, which mean more labor and more thought than old methods.

There are many things to consider in connection with the production of fine, extra large, highly flavoured strawberries, beautifully colored and glossy; but I shall treat the subject as briefly as I can.

The ideal method is, I believe, the annual system. By this I mean the transplanting of runners in August or September—runners grown carefully, being assisted in obtaining a foothold in the soil, instead of blowing about in the wind, and fruiting them the following season, and then immediately plowing or spading the same soil (if

necessary) for re-planting a month or so later. Early every spring I plant out as many plants of each variety as I wish for propagating purposes only. Every attention is paid to these plants, the soil kept perfectly clean, the first runners only being pinched off. After this the runners are assisted to take root by pegging them down, and a little soil drawn over the parts where roots are emitted. Two plants are grown on each runner, and only four or five runners on each plant. They are kept apart so there is no crowding.

If the weather is dry, thorough irrigation is necessary.

The soil for this nursery bed should be in the finest possible condition, as success depends on well nurtured plants.

I do not think I need say much in reference to soil preparation, as the readers of the Horticulturist know all about this. I

might say, however, that I do not consider it necessary to work the soil to a great depth as has been, and is frequently, recommended. Five or six inches of well prepared top soil is enough. A liberal dressing of manure, the fall before planting, is advisable in most cases, being plowed in and the ground left in a rough condition during the winter, and this supplemented by bone meal and wood ashes, or sulphate of potash in the spring—sulphate is better than muriate of potash.

The soil cannot be made too fine and ought to be perfectly free of lumps, and before planting should be rolled or tramped quite firm.

The plot of ground for fruiting should be enriched and prepared as above and sown with radishes, early peas, etc., which can be got out of the way by the middle of August. A thorough digging and firming should follow after the vegetables have been removed, and it is ready for the plants.

Transplanting ought not to be done during a drouth if it can be avoided. Better wait a month for rainy weather, unless, of course, irrigation is possible. The plants are removed from nursery to fruiting plot with great care, leaving as much soil as possible adhering to roots. This is a slow and tedious process where one's time is limited, and for this reason the fruiting plot should be close to the nursery so that little time will be lost in moving plants from one place to the other.

Too much care cannot possibly be exercised in transplanting. When this is done the surface of the soil, an inch or so, should be kept loose to prevent evaporation until the mulch is applied later on.

Weeds and runners should be watched for and kept down. About the middle of September or earlier, a mulch of manure may be applied, covering the soil between the plants. I use partially decayed leaves for that purpose, and find them excellent. These when dug in after fruiting, keep the soil in

perfect condition. The object of this mulch is to protect the soil from early frosts, it makes further cultivation unnecessary and the top inch of soil becomes filled with fine roots without which a plant cannot do its best.

Protecting the ground from early frosts, permits the growth to continue much later than it otherwise would. After the ground is frozen solid, the whole bed is covered with a heavy mulch of clean straw or other suitable material, the larger part of which is removed early in the spring. I have found that a heavy mulch between the rows during fruiting is anything but beneficial. Thinning of blossoms may be a good thing and I have always practiced it until the past season, when my fruit was fully equal in size and quality to other seasons.

In making my fruiting plot, I plant in beds, with a path two feet between. In the beds the plants are one foot apart each way; three rows in a bed. One can work among the plants nicely when so planted without tramping on or injuring the plants in the least.

The varieties which have succeeded best with me for exhibition are : Marshall, Edgar Queen, Brunette, Sharpless, Woolverton, Greenville, Bubach, Wm. Belt, Nick Ohmer and Margaret.

By giving close attention to all the requirements of my plants, I have produced Haverlands, Warfields and Lovetts of such large size as to be almost unrecognizable, and I do not think the limit has yet been reached.

I make selections every year, taking a few plants from those which have produced the finest specimens, and propagate from these. In this way, I believe, I am improving my stock.

In growing strawberries, as in everything else, results are directly proportional to the amount of energy expended, and one always feels well repaid for extra work done in the strawberry patch.

HONEST FRUIT PACKING.

ME have so often emphasized the importance of a revolution of methods in fruit packing that it seems almost superfluous to revert to it again; especially now that it is regulated by an Act of Parliament. Nevertheless we believe that our readers will be interested in an address by Chas. E. Forster, of New York City, before the Connecticut Fruit Growers on Domestic and Foreign Fruit Markets, from which we make the following extract:—

“Who that has stood in any of the markets of the world to which our special lines of perishables find their way has not blushed at the sight of offerings unworthy of the name? It was but last spring that a prominent commission firm at Liverpool wrote of a certain consignment of Russets from New York:—‘It is a shame that any American of character should send such trash to the English markets with the expectation of satisfactory sale. The whole invoice after removal of the top layers is little better than culls.’ A society of horticulturists as prominent as this, and which is bestowing so much time and thought upon the subjects of conservation of the soil, elimination of insect pests, and the general physical up-building and expansion of orchard and garden cultivation, can well afford to supplement its good work by allying itself strongly upon the side of honorable methods of marketing the developed product. The exalted standard adopted by your distinguished colleague, Mr. J. H. Hale, of South Glastonbury, should be an inspiration to all serious-minded horticulturists. His scientific skill in the growing of fruits is only exceeded by a studied choice of the most marketable varieties, while his methods and style of grading and packing has given him a name beyond reproach in all markets he has entered. We have another in our own State of New York, in the person of Mr. Geo. T. Powell of Briarcliff Manor, who, in addition to the study of how to produce, is ever foremost in the discussion of how best to market this great fruit crop of ours.

“Honesty of method is the prevailing in-

stinct which dominates the work of high-minded, practical men in all departments of industrial life. The United States may well be proud of the great galaxy of talent devoted to the elevation of fruit growing from the haphazard standard of former days to that of the scientific culture which gradually but surely is making its influence felt in every rural community. The average grower of fruits and vegetables needs just as much education upon the secondary proposition, how best to market his product, as upon the primary one of how best to grow it. The distributor, or dealer, to whom he may consign withholds suggestions for fear of being misunderstood. To criticise a shipper's methods too often means the loss of a more or less valuable client. It does not pay and is therefore considered not worth while.

“What the markets require is, quality first, and quantity next. Let the peaches be well graded with but one variety in a package. Give generous measure. A crate of raspberries scantily filled never brings its real value. Avoid the pony package, and let the latter be new whenever and wherever possible. The apple barrel adopted by the National Apple Shippers' Association is the standard of the country, and will sell in any market at home or abroad. The stove-pipe barrel of the Hudson River can go to Europe or to New York, where they don't want it, but the great West will have none of it. When using the generous second-hand flour barrel always wash and dry it thoroughly. Flour dust upon apples, pears and quinces means a cut of twenty-five or fifty cents in the price to make the stock sell. It represents a poor economy of time and labor. Use a stencil for the different varieties. It costs but a trifle, and indicates care and interest in the details that is always appreciated. Don't be ashamed to have a brand of your own, and pack up to it. The No. 2 stock will sell under a second brand, which can be understood. Shake apple barrels often while packing the fruit, and the attendant pressing need not then be too severe to bring it to market light and in good form.”



SEASONABLE NOTES FOR MARCH.

BY WM. HUNT, HAMILTON.

THE GREENHOUSE.

TOWARD the end of the month or at least early in April it will be necessary to give partial shading to palms and ferns as well as to newly potted cuttings or young seedling plants. If the shading is delayed too late in the season many of the plants (especially the young growth of palms) will suffer from sun scald. There is even greater danger in this respect at this early season than later on when ventilation can be given more freely than now during the treacherous weather often experienced in March. Bright hot sun, accompanied with keen, biting, frosty winds, makes it difficult to give ventilation sufficient to keep down the temperature without exposing the plants to danger. A light shading will prevent the hot sun from doing any great damage on bright cold days, when perhaps it is difficult to open the ventilators. Plants in flower will scarcely need shade for a week or two yet.

Water must be used more freely than hitherto, not only to the roots of plants, but on the floors as well as overhead syringing. Sprinkling the floors liberally with water,

early in the afternoon, will benefit the plants very much.

Freesias.—Pots of these useful greenhouse plants should still be given an ample supply of water, after they have done flowering, if good strong flowering pips or bulbs are required for use next season. Freesias commence to form young bulbs just about the time the plants are in full flower, so that it is necessary to give them water several weeks after they are out of flower. The drying off or resting period must not be commenced until the young bulbs have attained to almost mature growth, which is usually three or four weeks from the time the old bulbs are out of flower. After this period water can be withheld gradually until they are dried off completely, when no more water must be given them until time to re-pot them in August or September.

Roses.—These, whether in pots or planted out, will require regular daily syringing on bright days. A little fertilizer will be found beneficial now that a more active growth has commenced.

Cyclamen.—Continue to water cyclamen rather liberally, even when they have done



FIG. 2262. CHINESE PRIMULA.

flowering. In fact at no time should the soil become quite dry, even during the summer resting period. Pick off all the seed pods unless seed from them is required, as the production of seed reduces the strength and vitality of the corms or bulbs considerably.

Fuchsias.—These should be coming into flower nicely now. A little shade, plenty of water at the roots and a gentle syringing every day will help fuchsias greatly. A little fertilizer once a week will also help them along.

Azaleas.—Syringe azaleas every day when they are out of flower. Water at the roots must be given in sufficient quantities to thoroughly moisten all the roots.

Primulas.—Less water should be given these plants when out of flower. The double variety (*Primula alba plena*), as shown in the engraving should be propagated as soon as they are out of flower. Cuttings of this useful variety strike readily in sand in a shady position. This double variety of the Chinese Primula is one of the best and most satisfactory for an amateur grower. Like all other primulas it delights in a well drained soil, with a good admixture of leaf soil added to rich loamy potting soil, as well as a little sand mixed in.

Annuals.—Seeds of these for early flowering can be sown now. Better results will, however, probably be obtained by sowing them a month later.

Bedding Stock.—Cuttings of coleus, ageratum, lobelia and all bedding out plants should be taken now. Heliotrope and abutilons strike readily now from tender growth. One of the most valuable additions to the list of bedding plants recently is the pretty dwarf growing *Abutilon Savitzi*. Its bright silvery marked leaves and its compact habit of growth promises to bring this new variety into great popularity as a bedding plant.

FLOWER GARDEN.

March is a trying month for half-hardy plant life out of doors. A light covering of some protective material such as straw, long manure, etc., will be found beneficial to many plants laid bare by their winter blanket of snow having been melted away from them. A little protection now for a few weeks will be more needed than earlier, even though the frost may not be quite as severe.



FIG. 2263. ABUTILON SAVITZI.



FIG. 2264. COMET ASTER.

Bulbs.—These should not be uncovered until danger of severe frost is over. Remove the covering by degrees, as sudden exposure to light and air (and perhaps late frosts) will likely injure the flowering heads.

THE WINDOW.

Late in March, or early in April, is a good time to re-pot all the hardiest kind of window plants, such as geraniums, cyperus, ferns, and plants required for summer decoration.

Tuberous Begonias.—Old tubers of these plants can be started into growth now. Shake out the old soil carefully from the tuber if it has been kept in the pot during the winter. Good, rich, loamy potting soil with a small quantity of soil mixed with it suits these pretty summer flowering plants splendidly. Soil that a geranium will grow well in will suit tuberous begonias. Use plenty of drainage in the pots, water the soil once thoroughly after potting. Water should then be given sparingly until the plants have well started into growth.

Summer Flowering and Foliage Begonias, including Rex varieties, can be potted. The same remarks regarding drainage and watering will apply as for tuberous begonias, but the soil, especially for the Rex varieties, should have about one-fourth part of leaf soil added to that recommended for the tuberous variety. Amongst the newer varieties of begonia suitable for the window are *B. Thurston*, *B. Haageana* and *B. nivea*, whilst older varieties such as *B. Sandersonii*, *B. fuchsoides* and of course *Begonia rubra* cannot be omitted.

Annuals.—Seeds of those can now be sown so as to secure early flowers. Although the antirrhinum is not classed strictly as an annual, it can be grown as easily and successfully as any of the annuals. The newly introduced dwarf flowering varieties make a splendid display as border plants and will give a supply of flowers during the burning days of July and August, when flowers are often scarce. These dwarf growing varieties also succeed splendidly in pots in winter. The beds of these plants at the recent Pan-American exhibition were very much admired and proved conclusively the suitability of the new types of these old favorites for bedding plants. They are easy to raise and a few plants should be found in every flower garden.

The Scabiosa is another annual that will give good results during the hot months of summer and on until late in autumn. A pot or two of these sown early in April and planted out the second or third week in May will, with very little care and attention, provide a bountiful supply of flowers for decorative purposes. A bunch of the multi-colored types of scabiosa with a few spikes of antirrhinums and mignonette sticking up above the somewhat flat flowers of the scabiosa, relieved here and there with a few sprays of fern or foliage will make a most acceptable vase of flowers for table or house decorative purposes. The scabiosa, like the

snap-dragons, are not very exacting as to the nature of the soil, flourishing in either a loamy or a stiffer soil with almost equal vigor and profuseness of flower. A rich soil, however, brings much larger flowers and richer and more intense tints and shades of color. A dozen or two plants each of the

snap-dragon and scabiosa planted out in the garden will not only beautify the flower garden but furnish an almost unlimited supply of cut flowers the entire summer. Both of these varieties are largely grown by commercial florists, a fact that proves their usefulness for cut flower purposes.

FICUS REPENS.



FIG. 2265. FICUS REPENS.

This plant is perhaps one of the prettiest evergreen greenhouse climbers that we have. One would scarcely think, judging from its miniature-like foliage and its decided climbing habit of growth, that it belonged to the same class of plants as the well-known rubber plant (*Ficus elastica*) that has such coarse, heavy foliage, and is altogether of a

different habit of growth from this little climbing *Ficus*. Unlike a good many so-called climbers, *Ficus repens* requires no tying or training to induce it to cling to any support against which it is planted. In this respect it is very similar to the out-door climber, *Ampelopsis Veitchii*, or Boston Ivy; in fact, it has sometimes been termed the indoor Boston Ivy. It is very easy to propagate, striking root readily in sand in a moderate temperature. For covering a wall or even a board partition in a greenhouse or conservatory it comes in splendidly, as it is of very small culture, in fact, if given only fairly rich soil and an ordinary greenhouse temperature it will soon cover two or three square yards of surface with its ivy-like growth and small glossy green foliage. Its immunity from insect attacks as well as its ease of culture is another point in its favor, as few, if any, of the insect pests that are so partial to greenhouse climbers ever give any trouble with this miniature *Ficus*. A fairly rich compost of loamy soil, plenty of root room and a temperature of 50° to 75° suits this useful little climber splendidly. The plant as shown in the photo had been planted only about a year and a half from a cutting when the photo was taken.

Hamilton.

W. HUNT.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

QUESTION DRAWER.

Spineless Gooseberry.

1273. SIR,—Can you tell me anything about the Spineless Gooseberry? Has it been a success or failure in Canada? I am sure a great many of your readers would like this information.

Anagance, N. B.

LESTOR STOCKTON.

We know of no one in Canada who has tested this berry as yet. We will have it tested at one of our fruit stations.

The Laburnum.

1274. SIR.—Would the Laburnum stand over the Quebec winter?

Montreal, Que.

J. A. HARTE.

No. This tree is tender even in the Niagara district and would not succeed north of the peach belt.

Lime, Sulphur and Salt.

1275. SIR,—Is not the preparation of this spray a very troublesome operation?

SUBSCRIBER.

The following directions may be a good

answer to this inquiry, given in the Delaware East Shore Farmer :

FORMULA.

Unslacked lime . . .	40 pounds.
Sulphur	20 "
Salt	15 "
Water to make 60 gallons.	

Place ten pounds of lime and twenty of sulphur in a boiler with twenty gallons of water, and boil over a brisk fire for not less than one hour and a half, or until the sulphur is thoroughly dissolved. When this takes place the mixture will be of an amber color. Next place in a cask thirty pounds of unslacked lime, pouring over it enough hot water to thoroughly slack it; and while it is boiling add the fifteen pounds of salt. When this is dissolved, add to the lime and

sulphur in the boiler and cook for half an hour longer, when the necessary hot water to make the sixty gallons should be added.

Mr. Geo. E. Fisher, our provincial inspector, gives a slightly different formula, see page 61, and doubts if the salt is really essential. He writes :—"With good cooking appliances the preparation of lime, sulphur and salt wash is not nearly so serious an undertaking as it may appear. Where only fungus is involved I would prefer to use Bordeaux, but the California wash is a good insecticide as well as fungicide and costs only from one-quarter to one-third the cost of soap, the water for which must be heated also. I have not guaranteed any result from this wash (L. S. & S.) but am asking the growers to join us in making further experiments next spring and they are likely to do so in a wholesale way. The sulphur is supplied in bags of 112 lbs. and ninety-one bags have been applied for. One bag will make seven to eight 30 gallon lots of wash. If it goes on like this I am afraid the people I bought from will not be able to supply the quantity required."

Cultivation of the Gooseberry.

1276. SIR,—Please give your method of cultivation of Gooseberries.

ANSWER BY MR. STANLEY SPILLET, NANTYR.

As I pointed out in my last letter the gooseberry has two layers of roots, one layer close to the surface. I visited quite a large plantation last year in which the scuffer had been run close to the bushes, with the result that this upper layer was badly torn. If that had been done a little earlier in the season every berry would have fallen off. Black currants will act in the same way. I lost two crops of gooseberries and black currants by deep cultivation before I detected the cause, and I have never failed to have a crop since. The method that I prefer, one year with another, is to mulch under and about the bushes with fine well-rotted manure, and run the scuffer (a Planet, Jr.) one width

between the rows. When the conservation of moisture is the sole object in mulching, finely broken pea straw beats everything else I have ever used for that purpose. I prefer the manure because it feeds the bush through the upper layer of roots.

If pea straw is used, it is better for the purpose if it has lain a year out in the field in a pile. It should be applied early in the spring so that the rains shall flatten it down. The nicest piece of mulching I have ever seen was pea straw well broken by a threshing machine; it was applied in the fall, and all the surface was covered with the straw.

The snow in winter packed it down and the whole piece was as level and smooth as a carpeted floor. I never saw finer Downings than grew that year. Mice made paths in all directions under the straw, but not a stem was touched.

Morris and McCullough, our principal strawberry growers here, use pea straw altogether for covering the vines after the ground has frozen. It is spread thinly and raked off in spring between the rows, and they find nothing else equal to it.

For cultivation under and about bushes of all kinds, including Shaffer and Columbian raspberries, my favorite tool is a long-handled shovel, ground sharp both at the point and along the sides of the blade. Early in spring a large shovelful of hardwood ashes is sprinkled under each bush and then the mulch is applied over the ashes. Our supply of manure is obtained from hotel stables. We have just got in thirty two-horse loads, and it is infested with all kinds of seeds. The strong weeds will grow through the mulch but can be easily cut by running a shovel under the mulch, and this can be done without disturbing the mulch very much. Every second year manure is dug in between rows. Strawy manure is preferred, as it serves to loosen up the clay soil. The ground is dug deep and thrown well back, and the trench thus formed is filled with manure, well tramped

in. By covering this manure another trench is formed and filled, and so on. I have no doubt that the manure can be ploughed in. I have always had the largest crop of raspberries from Shaffer and Columbia when they are mulched. The roots of these two varieties are so near the surface that the soil can scarcely be stirred without injuring them and letting in the drouth, or rather letting out the water.

I have never covered my strawberries and always have a good crop of berries.

Ferns and Insects.

1277. SIR,—I am sending you leaves of two ferns that are infested with some small insect; can you tell me the best treatment to use? The larger of the two I have had for many years; it has grown a large handsome plant and I have had no trouble till now. It did not look well and on examining it with a magnifying glass I found tiny insects all round each leaf on the under side. For some weeks I have been dipping it in strong soap suds, once or twice a week, and about a week ago repotted it, but so far it does not look much better. Would you recommend me to cut off all the leaves and let it spring up again from the root?

The asparagus fern has had a few scaly insects which I have picked off, but something smaller seems to attack the very ends of the fronds and spoil its beauty. I have given it also the soap suds bath. What would you advise for it?

Will you kindly tell me the name of the larger one, and if you can, the cause of the trouble?

Port Dover.

(Miss) E. P. BATTERSBY.

ANSWERED BY PROF. H. L. HUTT, O. A. C.

GUELPH.

The name of the Fern enclosed is *Pteris longifolia*. This is a vigorous growing fern which does well in ordinary dwelling houses. The other, frequently called Asparagus Fern, is not a fern at all, but is a plumose variety of the common vegetable Asparagus. Its proper name is *Asparagus plumosus*. The leaves were somewhat dry when they arrived here, so I could find no trace of insects upon the fern; but I judge the trouble was caused by the Red Spider, a very common pest upon house plants, especially where the air is dry and temperature runs high.

Your plan of dipping the plants in strong soapsuds is probably the best that could be

adopted to keep plants free of this pest; but if the fronds are already much injured by it, it would probably be just as well to cut them off close to the ground and allow fresh ones to come up. Care should then be taken that the new ones are kept free from the spider.

The few scale insects found on the Asparagus would hardly account for the dying of the tips. The scales should, of course, be picked off whenever noticed; but the dead tips may be due to the age of the shoots. It would be better to cut off all unsightly shoots and allow fresh ones to come up to take their place.

Club Root in Cabbage.

In your January number, Mr. E. Millihen, Port Colborne, Ont., asks to "Kindly give cause of club root in cabbage and what will prevent or stop it." Prof. Hutt mentions that no reliable data has been obtained, but that lime has been effective in destroying the spores of club root in the soil.

We have market gardeners in the vicinity of Montreal who have grown cauliflowers and cabbage for over ten years in succession on the same land, but always with a liberal application of lime. For over twenty years we have used ashes as well as lime with equal success. A few years ago we had not enough ashes to finish a row, leaving about ten rows without, and we lost nearly all the cauliflowers in these ten rows with club root. Next season we planted the same land with cabbages, with ashes in abundance, and did not find a plant affected with club root.

A very good way to find if the land is affected with club root is as follows: In pulling out the plants of wild mustard, if you find them with club root, then don't spare the lime for the cabbage or cauliflower. You will find Dr. Fletcher, Entomologist of the Experimental Farm, Ottawa, will substantiate what I say.

R. BRODIE.

"Westmount," Montreal.

OPEN LETTERS.

The Niagara Fruit Exhibit Before the Duke and Duchess.

SIR,—In looking over the February number of the Horticulturist I find a timely communication from J. P. Brennan, Esq., Grimsby. I am more than surprised at his closing remarks, namely, "We had a golden opportunity to show the Duke and Duchess of York the resources of the fruit sections of Ontario, but it was lost," &c. Doubtless Mr. Brennan at the time of the Niagara Fruit Exhibit was very busy with the final disposal of his fruit crop, and like some other fruit growers failed to notice in the Toronto daily papers, also the St. Catharines, Niagara Falls and Niagara Times papers reports of this Niagara Fruit Growers' Exhibit for the Royal party at the Queen's Royal Hotel, Oct. 12, 13, 14, 1901. I now enclose a clipping from the Toronto Mail referring to the subject:—

"No, the fruit growers were not behind. The exhibit was in every respect a decided success and is thought to be the best advertisement ever given our export trade in fruit.

"The collection of peaches, grapes, pears, strawberries and figs was exceptionally fine in regard to flavor, size and color, and was said to be the best ever seen at that late season, Oct. 12th to 14th.

"The exhibit in the above named fruits was larger than at any time seen on the tables during our Ontario Fruit Exhibit at the Pan-American, except after the 10th of September, when the tables of that exhibit literally groaned under the pressure."

I seldom take the trouble to correct an error in print, but in justice to the committee, the contributors and Mr. Winnett of the Queen's Royal Hotel, Niagara, who together paid every cent of the cost of this exhibit, this explanation is now needed.

The chairman of this exhibit received a letter from the Governor-General Lord Minto, expressing the thanks and high appreciation of the Royal party to the fruit growers for their excellent display of fruit at Niagara. I am, yours sincerely,

W. ARMSTRONG.

Riverside Fruit Farm, Queenston, Feb. 19, 1902.

Orchard Tools and Implements.

SIR,—I think a very interesting article might be written on orchard tools and implements. I have a good sized young orchard which I have been cultivating with a disc harrow, but that is a pretty heavy instrument for a team, and my idea is that an orchard would be easier and better cultivated if part of the cultivating were done with a spring tooth cultivator and not a harrow, because I think the harrow does not stay well enough in the ground and is liable to be knocked against the trees with stones, but the spring tooth cultivators that are made now have very high wheels. The

trouble with those is that if the trees are branched out 4 or 4½ feet from the ground, they run out a little before growing upwards, and with the high wheel cultivator one has to keep out perhaps three feet from the trees, or the high wheel will scrape the l.mbs.

FRANCIS S. WALLBRIDGE, Belleville.

Fruit and Health.

SIR,—Has the Association ever paid any attention to the scale on the orange imported into this country, or has the Association ever paid attention to the fruit and vegetables imported into this country in a diseased condition? What effect has this decayed fruit on the health of the people? Some five years since I noticed on the Ottawa market, imported cabbage in a decaying state. I claimed at the time, that if such importation was continued it would bring sickness to the consumer. The importation has been continued and I claim as a result it is largely responsible for the present state of health in the Dominion of Canada.

Those imports ought to be inspected at the port of entry by a health officer and all fruit that is in bad condition returned to the shipper at the shipper's expense and not to be appraised by the custom-house officer.

In regard to fruit packing, when fraud is found why not make the penalty the returning of the package to the shipper and charging him all expenses.

Billings Bridge, Ont. MARKET GARDENER.

Bug Death—A New Insecticide.

SIR,—Having recently received numerous enquiries regarding the composition of "Bug Death" a new insecticide, for destroying the potato beetle, we submitted the material to analysis and obtained the following data:—

Moisture .....	.40	per cent.
Insoluble matter, sand, etc.....	11.21	"
Oxide of iron and alumina.....	5.60	"
Lime.....	.51	"
Potash	none	
Zinc oxide.....	82.10	per cent.
Lead and copper.....		faint traces.
Phosphoric acid.....		traces.
Chlorine.....	.47	per cent.
Nitrogen.....	.107	"

These results show that it is practically an impure or commercial zinc oxide, no doubt a by-product. As regards the essential elements of plant food, it is strikingly deficient, the only constituent present of any fertilizing value being nitrogen, of which there is only one-tenth of one per cent. It is therefore, obvious that any claims made for it as supplying nourishment for crops are without foundation.

Yours truly,

FRANK T. SHUTT,
Dominion Experimental Farm, Ottawa. Chemist.

Our Apples at Glasgow.

SIR,—On page 506, December number, 1901, of the Canadian Horticulturist, is inserted a letter from the Glasgow (Scotland) Herald of October 6th, that needs correction.

In it the writer says, "while strolling round the Canadian section of the Glasgow Exhibition in July, I came upon the most magnificent display of apples I ever witnessed. Entering into conversation with the gentlemen in charge he kindly explained to me the different varieties, and also allowed me to taste several, which I found to be excellent.

The varieties which he particularly recommended as first rate eating apples, were Alexander, Gloria Mundi, Holland Pippin, Ben Davis, Wealthy, Fameuse, Mann, Spitzenberg and Blenheim Pippin.

I think it will be almost needless to say, that, with regard to that paragraph of his letter, the writer must either have misunderstood what was said or writing from memory, some time afterwards has unintentionally fallen into error.

The largest and showiest apples at the date of his visit have evidently been fixed on his memory, and are placed at the head of his list. The two last, viz. the Spitzenberg and the Blenheim Pippin, were remarkably fine in quality, and much admired and commented on during the whole term of the exhibition.

Another passage in the letter requires explanation, viz., that where it says he was surprised to find that out of fifty varieties exhibited, only three were as yet known in Britain. This also is probably due to a misapprehension.

As very few of your army of readers are personally

acquainted with me, I have thought it advisable to draw attention to these misleading passages lest any one should fancy that some inexperienced fellow was in charge of the fruit exhibit at the Glasgow Exhibition.

Grenville, Que.

ROBT. HAMILTON.

News from our Fruit Stations.

Algoma Station. SIR,—At the fall show at Sault Ste. Marie the display of fruit was immense. Collections ran from twenty-five to fifty varieties, all good sound fruit; but the variety that caught the eye on the tables for the immense size and showy appearance, was Alexander.

I have not seen anything to come nearly equal to them in eastern Ontario. There were eight exhibits of this apple, besides those shown in collections. Ben Davis was exhibited for the first time, but judging from the species shown, will be no use here. A number of Russian varieties obtained from Central Experimental Farm, Ottawa, were also shown; they were, I should judge, all fall apples and none of them equal to what we already have.

An arrangement might be made to hold our annual picnic here, something along the same line as last season at the Fruit Stations. Our usual attendance at this meeting was from three to five hundred and it is to be held at Richard Landing this year. The usual time is the beginning of August.

The thermometer is twenty-eight below zero here to-day, with bright sunshine; there is about one foot of snow on the ground.

Richards Landing.

CHAS. YOUNG.

OUR AFFILIATED SOCIETIES.

Orillia.—The annual meeting of the Orillia Horticultural Society was held in the Council Chambers on Wednesday evening, the 8th of January. The President, Mr. G. I. Bolster, in the chair. The attendance was satisfactory. The Secretary-Treasurer presented the annual statement of accounts, which showed receipts from all sources of \$239.63, including balance on hand from 1900 of \$69.88. The total expenditure was \$240.45 leaving a balance due the Treasurer of 85 cents. The President read the following report of the proceedings of the year: "With much regret I have to announce to you that since our last annual meeting we have been deprived by the hand of death of our friend and Vice-President, Mr. W. H. Leef. In him we have lost a zealous and valuable member of the Society. I have the pleasure of making the following report of the proceedings of the society during the past year. At the first meeting of your Directors, it was determined that monthly meetings should be held during the year, and the first of these monthly meetings was held on the 12th of February. This proved an interesting meeting and many matters were freely discussed.

It was determined to invite Prof. Fletcher to deliver a lecture some time during the spring; this however, he found impossible to do, but promised to try to meet our views at a subsequent period. A committee was appointed to communicate with the Town Council and the Board of Trade with a view to joint action in the matter of planting and care of street shade trees, boulevards, etc. Both of these bodies appointed committees to meet your committee, and a joint meeting was held, of which Mr. C. L. Stephens was made chairman, and Mr. G. H. Clark, secretary. The matters referred to were fully considered and several recommendations made for the action of the Council; and subsequently the joint committees met the Council and everything recommended seemed to receive favorable consideration and a promise of being carried into effect; but notwithstanding, no steps were taken during the year to carry out the matters agreed upon. A slight improvement in the method of planting street trees was, however, noticeable and with good results so far.

A vote of thanks and congratulations to Mr. Stephens was moved by Mr. Secord, seconded by

Mr. Alport, for the interest he had taken in, and success which had attended his efforts to secure a creditable exhibit of fruits from this district to the Pan-American Exposition, last summer. Both the mover and seconder expressed in felicitous terms the pride with which they had viewed the Canadian exhibit at Buffalo, more particularly the Ontario part, in which Orillia district occupied so prominent and creditable a place.

On motion of Messrs. Reeve and Fisher, it was resolved that meetings of the Board be held on the second Tuesday in February, March and April, 7.30 p. m. in the Council Chambers.

On motion of Messrs. Secord and Reeve, the Secretary was instructed to suggest to the Minister of Agriculture, that should any amendment be

made in the Agriculture and Arts Act, at an early day, it be provided the annual meetings of Horticulture Societies may be held on any day during the second week in January which may be appointed by the Directors, on due notice being given in the usual way.

At a subsequent meeting of the Directors. Mr. C. L. Stephens was appointed Secretary-Treasurer for 1902. The Secretary was instructed to communicate with Prof. Fletcher, with a view to having him deliver a lecture in Orillia at some early date. The committee of last year to act in conjunction with Town Council and Board of Trade in the matter of street shade trees, boulevards, etc, was re-appointed.

OUR BOOK TABLE.

BOOKS.

Atlas of Western Canada, issued under the direction of Hon. Clifford Sifton, Minister of the Interior, Ottawa Canada, 1902. This is a most creditable work, and is designed to give the world some adequate idea of the resources and extent of our magnificent country.

Mr. F. Marion Crawford's novel, *Marietta: A Maid of Venice*, is now in its fortieth thousand and a new edition is on the press; and a fourth edition of Mrs. Alice Morse Earle's *Old-Time Gardens* is also on the press.

"**The Cow Pea**" is the title of the latest publication issued by the Experiment Farm of the North Carolina State Horticultural Society at Southern Pines, N. C. This book, neatly bound and illustrated, in plain and concise manner, discusses the value and uses of that important crop—The Cow Pea. Every reader can get a copy free by writing to the Superintendent of Experiment Farm, Southern Pines, N. C.

JOURNALS.

Country Life in America, January, 1902, Page, Doubleday & Co. 34 Union Sq. East New York City. This is only the third issue of this elegant publication, which is edited by that indefatigable writer, Prof. L. H. Bailey, of Cornell University. It is a folio of thirty two pages, printed on extra heavy, highly finished paper, and illustrated with magnificent photogravures, some of them full page size. We know of no journal in the world equal to it, dealing with country life, either in make up or in subject matter; and it will command a place on the table of the gentleman as well as on the desk of the practical horticulturist.

Farm, Field and Fireside Monthly, published by the Howard Co. Chicago, Ill. got up in similar style with the well known American Agriculturist, on ordinary paper, but containing very much valuable, practical information.

CATALOGUES.

THE JEWEL NURSERY CO., Lake City, Minn., fruit trees. VILMORIN ANDRIEUX & Co., 4 Quai de la Megisserie, Paris, France, Seed Merchants. THE ROBERT EVANS SEED CO., Hamilton, Ont., Catalogue, Farm and Garden Seeds, 1902. JOHN A. BRUCE & Co., Seed Merchants, Hamilton, Canada. GEORGE S. JOCELYN, Fredonia, N. Y., Wholesale Catalogue of American Grape Vines, 1902.

CANNAS, NEW AND HYBRID GLADIOLI, Groff's Hybrids, John A. Campbell, Simcoe, Ont. How to SPRAY, when to Spray and what Sprayer to use, The Gould Mfg. Co., Seneca Falls, N. Y. THEODORE B. SHEPHERD'S DESCRIPTIVE CATALOGUE. SEED ANNUAL, 1902, D. M. Ferry, Seedsman, Windsor, Ont.

SILAS WILSON, ATLANTA, IOWA, Circular of the McPike Grape. Price List of Nurseries 1902. ALBERT WOOD, Woodlawn Nurseries, Rochester, N. Y., Descriptive Catalogue, Spring 1902—Small Fruits.

BULLETINS,

RESULTS OBTAINED IN 1901 from Trial Plots of grain, fodder corn, field roots and potatoes, by Wm. Saunders, L. L. D, Director Experimental Farm, Ottawa. Bulletin 39.

APPLES AND PLUMS are treated of in the Fourteenth Annual Report of the Vermont Experimental Station, 1900-1901, by Prof. F. A. Waugh, Horticulturist, Burlington, Vt.



FIG. 2266. MOORE'S DIAMOND.

THE CANADIAN HORTICULTURIST

Vol 25 1902 No 4

* * APRIL * *

DIAMOND.

(MOORE'S DIAMOND.)



FEW years ago the Niagara grape was introduced with such a flourish of trumpets that several other excellent white grapes of merit, introduced about the same time, were quite obscured for a season. Among these was the Diamond, a grape now coming to its deserved level by reason of its merit. We have purposely shortened the name from Moore's Diamond, by which term it has been generally known, in accordance with our general rule of abbreviating as much as possible the names of varieties. We have for example Moore's Early and Moore's Diamond; is it not better to call the former Moore and the latter Diamond?

Our frontispiece shows a bunch of this grape grown in our experimental plot at Maplehurst in 1901, which is but an average sample. Perhaps the bunches were unusually fine that season, but if it continues to yield such fine and attractive bunches, and to ripen a week in advance of Concord and Niagara, it will command the market for white grapes for that week.

That Diamond is growing in value and is also a suitable variety for the colder sections, is evidenced by its being double starred for Quebec, Ontario, Maine, Massachusetts, New York and Michigan as a desirable variety for planting.

Its origin was at Brighton, N. Y. in 1873, by Mr. Jacob Moore, from seed of Concord, fertilized with Iona; just one year after the Niagara was originated at Lockport.

The vine is vigorous and productive, with foliage much like that of one of its parents, the Concord. The bunch is large, this one measuring $5\frac{1}{2} \times 3\frac{1}{2}$ inches, compact and shouldered. At the Michigan station, where weights are taken instead of measurements, Diamond is put down as 4 ounces and the Concord a trifle over 5 ounces, a good way of showing comparative size.

The berry is about three quarters of an inch in diameter, and adheres firmly to the stem. It is greenish white in color, yellowing slightly at maturity, pulp tender. Quality, good for desert, superior to the Concord. The Michigan station gives it 8 for quality,

the Concord 6 and the Delaware (the highest) 10. In season it is about a week in advance of the Concord.

In order to have the opinion of others, as well as our own, both for and against this grape we add the following :—

“Vine vigorous and quite productive. Valuable for home use, and grown to quite an extent for market in some grape sections.” Mich. Bull. 187.

“The best out door white grape we have” Judge Miller, Ohio.

“The most attractive and earliest white grape cultivated South,” P. J. Berckmans, Augusta, Florida.

“Unproductive in my vineyard,” G. W. Campbell, Ohio.

“Earlier than Niagara, and on that account brings a higher price, but it does not produce half the quantity,” M. Pettit, Winona, Ont.

“It has a large white grape not quite as large as the Niagara, heavily shouldered or sometimes double shouldered. The flavor is juicy, sweet and of good quality. It ripens

one week ahead of the Niagara. The wood is strong and vigorous and has a good tough foliage. I consider the Niagara and Moore’s Diamond the only two profitable whitegrapes to grow for commercial purposes. The only drawback is that it does not throw out enough tendril to hold it to the wires.” F. G. Stewart, Homer, Ont.

“I have fruited the Diamond for the past five years. I find its season about with Worden. It is a heavy cropper, the bunch is fine and shouldered; the vine vigorous and the foliage healthy. I consider it very valuable.” Geo. X. Walker, St. Catharines.

“I think there are two strains of this grape, one almost worthless and the other one is the very best of grapes.” W. H. Bunting, St. Catharines, Ont.

“I have fruited the Diamond here and it does remarkably well. The vines are very healthy and vigorous. It bears very well and ripens a little earlier than other white grapes. I consider it a very good variety.” G. C. Caston, Craighurst, Ont.

NOTES ON CURRANTS.

BY A. W. PEART, FREEMAN, ONT.

CURRANTS do not like a light sandy soil nor a heavy clay; a rich, porous, damp but not wet one, seems to suit them. Until last year the margin of profit in growing them was narrow, so much so that many plantations were pulled up. The re-action appears, however, to have set in, and we may look for higher prices during the next few years.

In the red varieties the Wilder, a new one, the Cherry, Red Victoria and the North Star take the lead here; in white, the White Grape and White Imperial; and in black the

Collin’s Prolific, Saunders and Naples stand first in the order mentioned. Both the North Star and Collin’s Prolific are late varieties. Black Currants are desirable, inasmuch as they are practically immune from all troubles, while the red and white varieties are easy victims to the currant worm unless promptly destroyed with Paris green, of which one pound to 250 gallons of water will suffice. This fruit is a voracious feeder, but quickly responds to careful cultivation and liberal manuring.

NOTES AND COMMENTS.

Science and Practice will be more closely related during the 20th Century in consequence of the labors of such men as Lawes and Gilbert, whose names have become familiar to all careful students. Their work has made the 19th Century famous for exceedingly useful agricultural experiments, and has set in operation experiment station work in many countries. Hitherto the great mass of the people, and especially the farmers and fruit growers, have known little of the underlying principles of their practice, because such knowledge has been locked up in books and largely confined to the halls of the great Universities for the benefit of students of the liberal Arts. Education had been monopolized by the professions; and the lords of the soil, kept in ignorance, lacked that self respect that was due to their noble occupation, and did not attain that success which was due to their industry.

Now all is changed. The professor goes to meet the farmers, and submits himself to their cross questioning: he puts his chemistry, physiology and botany into common terms and applies the principles to the every day duties of the farm. As a result we shall have intelligent cultivation of the soil, and failure and discouragement will be the exception in our fair Dominion.

Night Shelter would appear to have an influence on vegetable production, if we may judge from results attained by A. Petit, of France, in 1901. Various mats and screens were stretched a certain distance above the plants at night, and a record kept as compared with certain other plants not so treated. In case of cabbage and lettuce sheltered from March to May a very considerable increase in yield was noted; while straw-

berries with night shelter from October 15th, grew more vigorously, were about eight days earlier, and the crop was sensibly heavier than where not sheltered.

To make plants bloom in the window garden Mr. Barton advises using small pots. Most people, he told the farmers at Grange Hall, Grantham, used pots too large and in consequence the plants produced stalks and leaves instead of flowers. Another mistake, often made, was in getting the black soil from the woods for flowering plants. This is not the best potting soil. Better get a strong clay loam, such as you would sow to wheat; take a turf from that and let it rot in a pile for one year. Then, if necessary, it could be enriched with cow manure, and made porous with sharp sand.

Trees for home and school grounds, according to Mr. W. C. McCalla at the same meeting, may be well selected from the native varieties. He had collected a herbarium of these trees, and found at least twenty species which grew in the Niagara district, that could not be found elsewhere. Mr. L. Woolverton advocated the cultivation of taste in tree planting about the farmer's house. Trees and shrubs should be grouped about the entrance to give an air of mystery to the approach, and in front of fences, barns and other objectionable features, so as to hide them from view. He advocated an open lawn in front of the house as the very best setting for it.

Boys and girls who live in the country should study those things that will best fit them for their life work. "The professions," said Mr. Duncan Anderson, "are overcrowded, but there is plenty of room on the

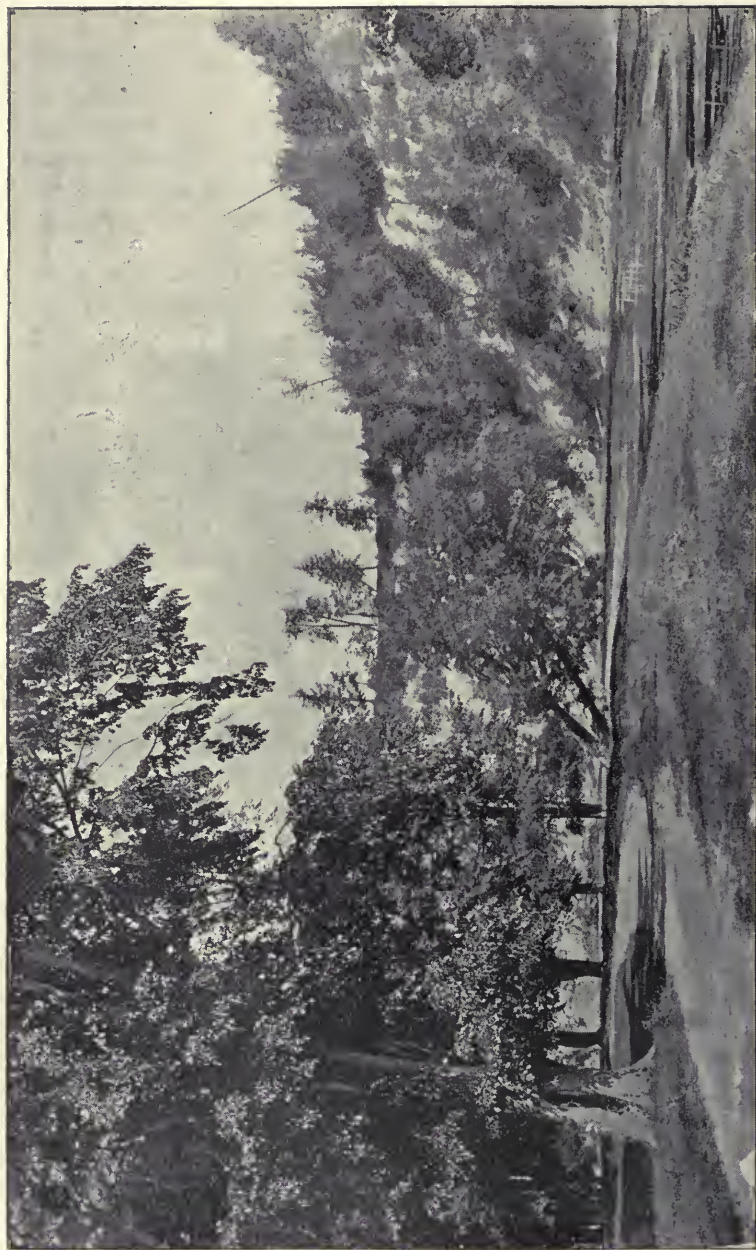


FIG. 2267. VALLEY OF THE SAUGEEN RIVER.

farm for our best talent. One thousand dollars in a city is soon used up in house rent, vegetable and fruit bills, and many other things which the farmer has without buying and which he often forgets to count. Besides, in a public position a man is only engaged while young and strong, but as soon as he reaches the declining days of life and loses his position, he cannot easily secure another."

Civic Improvement.—Owing to the enterprise of our esteemed experimenter at Walkerton, Mr. A. E. Sherrington, a fine Horticultural Society has been organized at this town.

The first public meeting was held in the Opera House on March 13th, when the Mayor occupied the chair and the Walkerton orchestra provided delightful music. The speakers of the evening were Mr. T. H. Race, of Mitchell, and Mr. L. Woolverton, of Grimsby. The former gave a most delightful and inspiring address upon the influence of flowers upon the life and charac-

ter, and the latter spoke on landscape art as applied to home and school grounds. The interest was most intense from first to last, and the Society hopes to stir up the town to special work in civic improvement.

At the close of the meeting a practical turn was given to the work of this Society by a proposal that lady directors should be added, to whom especially should be committed the planning of work for the improvement of the town. A beautiful bend in the Saugeen river, near the town, was mentioned as already provided by nature with most attractive features, only needing a certain amount of care in the laying out and planting to make it a most attractive feature.

The school grounds had already been decorated, but much work remains to be done for improvement of the streets and other portions of the town. Walkerton is already a beautiful place, nestling as it does among the hills, with its parts diversified by the Saugeen river, and the ladies, every-



FIG. 2268. A MEETING OF GARDENERS AND FRUIT GROWERS AT OUR WALKERTON FRUIT STATION.

where the champions of civic improvement, will have here a fine scope for their ingenuity.

Lawn Grass.—At the Walkerton Horticultural meeting much emphasis was given by the writer to the importance of a beautiful stretch of lawn about the home. It should be open in the front of the house, and not cut up by gravel roads, nor spoiled by flower beds or shrubs which are in place along the borders; the lawn should afford a place where the young people may enjoy a game of tennis or croquet, and where the children may join in a romp or game of ball. When speaking on the same subject to the Brampton people, Mr. A. Gilchrist, of West Toronto Junction, who was also one of the speakers, suggested a good mixture for sowing such a lawn; his formula which he had tried and found most satisfactory even on unfavorable soil, is made as follows: Kentucky blue grass, 10 lbs.; Red Top, 1 lb.; Vernal, $\frac{1}{4}$ lb.; White Clover, $\frac{1}{4}$ lb. He advised trying bone dust as a fertilizer, sowing about twenty pounds of it to every 1000 square feet of surface.

Fertility of Orchard Soil is one of the important problems in Ontario, where the humus and the elements of plant food have been to such a large extent extracted by grain crops. Fortunately perhaps for the soil in our province, wheat raising is no longer profitable, and our farmers are being compelled to give attention to hoed crops, or to stock raising, both of which tend to restore its fertility.

Mr. Duncan Anderson, in his addresses at Bartonville and Grantham emphasized the great superiority of barn manures over commercial fertilizers, not because they contained any more potash, phosphoric acid and nitrogen for the same money invested, but because of the humus they furnished, with-

out which it would appear that these elements cannot well be taken up by the plant.

Prof. Ladd of North Dakota station, has been making special investigations along this line and finds that as humus decreases in soils they become less productive, less retentive of moisture, and inferior in physical quality, while on the other hand it was found that an increase in the percentage of humus was accompanied by an increase in the percentage of phosphoric acid and also with a greater productivity of the soil. As the humus increases it seems to cause portions of the phosphoric acid, till then existing in a insoluble form, to become transformed into a soluble form, and thus, presumably, to become more ready available as plant food. The same is true as regards the potash, lime and other soil constituents. A decided increase of humus and nitrogen may be secured in orchard land by growing such leguminous crops as peas or clover, which are nitrogen accumulators.

The writer had signal success in a mixed orchard of pear, plum and apple trees, which were not growing well and producing very little fruit and that of inferior size. Crimson clover was sown in August, and the following spring a light dressing of ashes, about fifty bushels, and about fifty lbs. of bone dust, to the acre were sown, and the whole ploughed under. The ground was then cultivated until about August 1st, when the same treatment was pursued again. As a result the trees became quite thrifty, and bore generous crops of very highly colored fruit, seeming to prove that this treatment was almost ideal. The soil was a clay loam.

Gold and Wickson Plums. Both these much lauded varieties are condemned by Prof. Waugh of Burlington, Vt., in his last report, for the commercial orchard. The former he says is uncertain in bearing, and gives only light crops of small and second rate fruit. It

ripens unevenly and drops early from the tree. The Wickson is a beautiful fruit of beautiful color, good texture and moderate size; but the quality is not high, and the tree is of poor form and slow coming into bearing. We hope he undervalues this latter, for owing to the high recommendations accompanying its introduction, the writer was induced to plant largely of it; and no doubt many others have done the same. Of the Japan plums it seems that Abundance and Burbank are still the leading varieties for profit.

Lime Sulphur and Salt Again.—Mr. G. E. Fisher, who is most hopeful of the effectiveness of this wash both against scale and fungus, draws our attention to the following which appeared in a recent issue of the *American Agriculturist*:

A pioneer and enthusiast in the use of the lime, salt and sulphur wash as a remedy for San Jose scale is N. G. Creely, of Burlington county, N. J. In the early spring of 1901 the sprayed a twelve acre peach orchard of large three-year old trees that were badly incrustated with scale. The result was almost magical. Not only was the scale all killed, so far as a rigid inspection could determine, but the trees were uninjured, and making instead a phenomenal growth of leaf and wood. Notwithstanding the wet, rainy spring, the wash remained on the trees all summer and was plainly apparent at picking time. The spraying was interrupted by rains, but was continued as soon as trees were dry, and neither that applied before nor after the rain was washed off. The trees are now strong, healthy and remarkably clean.

The material is so inexpensive that it can be used freely. Mr. Creely uses a large force pump having 180 pounds pressure and can throw a solid stream seventy-five feet high. Vermorel and other fine nozzles are discarded and a straight one used that has an opening of about $\frac{1}{8}$ inch diameter. The stream is broken into a spray by putting the thumb against it, although he expects to use a metal cap for this purpose in the future.

It is applied in late winter or spring on dormant trees, and used in excess until it drips off the branches and runs down the trunk. There is no danger to the tree from using an excess. The whole tree is incased in coat of thick wash. Mr. Creely says that many peach trees in his vicinity have been injured by using petroleum, and the results have not been entirely successful, but this wash is harmless, effective against the scale and is cheap. He expects to spray the orchard again this spring, although confident that about all the scale is dead from last winter's application. He

will also use it extensively on apples and pears. For apples he intends to add eight ounces paris green and four pounds copper sulphate to the 150 gallons, thus making a perfect spray against insects and fungous diseases as well as scale. He thinks one spraying with this compound may do the whole business. He believes that where the wash has failed in the east it is because it was used when cold, or was not properly compounded. His success has inspired others, and other large orchards will be sprayed this spring.

Orchard Institute Meetings.—Much credit is due our new secretary, Mr. G. C. Creelman, for arranging a series of fruit growers' meetings in the most important fruit growing sections of the province. The meetings are being held in the afternoons, first in a public hall at 1.30 p.m., adjourning to an orchard at 3.30, when practical demonstrations are given in pruning, grafting and other orchard work. These meetings will no doubt result in a better spirit of co-operation among growers so as secure the very best terms both in buying and selling their produce.

The Ben Davis seems to be the most popular commercial apple in the New England States. Prof. Waugh of Vermont has been securing reports showing the number of bearing trees and the number of young trees of Baldwin, Greening, Spy and Ben Davis. He finds that the planting of Baldwins and Greenings is considerably reduced in the recent plantings; the Northern Spy is holding its own, and perhaps gaining a little in Northern New England; while the Ben Davis outnumbers them all in the recent orchard plantings of nearly every state.

Co-Operative Cold Storage.—A number of large fruit-growers in the vicinity of St. Catharines, having realized the advantage and necessity of uniting together in some way, in order to prevent the great waste that was prevalent in seasons of full crops of fruit and to secure better and cheaper transportation facilities, formed, about three years ago, what is known as the St.

Catharines Cold Storage and Forwarding Co., Limited. This company has a capital stock of \$10,000 in shares of \$10 each, which is largely held by local fruit-growers in varying amounts.

During the summer of 1899 a complete cold storage warehouse was erected adjacent to the Grand Trunk R. R. tracks. This warehouse consists of a concrete building 36 x 60 feet, three stories in height, with walls of concrete twelve inches thick, thoroughly insulated on the inside with a number of dead air spaces separated by double thicknesses of matched lumber with insulating paper between.

The second or main floor, which is on a level with the floor of the ordinary freight car, contains three cold chambers of a capacity of about two carloads of fruit each, with a large receiving room and corridor leading into the cold rooms. The lower floor is similarly divided, except that the machinery room takes the place of the receiving room on the upper floor. The third floor is used for general storage.

The entire warehouse is fitted with the most approved machinery for the production of a temperature ranging from 33 to 40 degrees, as may be required, by means of compressed ammonia, which is forced through a six-ton ammonia compressor and subsequently allowed to expand in a series of coils, thus producing intense cold. By means of a powerful exhaust fan the air of the various rooms is so passed between these coils over which a constant brine spray is playing. This spray acts as a purifier of the air on its way, and it is returned to the rooms pure, dry and cold.

The air in the entire building makes a complete circuit in a very short time, when the machinery is in operation, and the results have so far been very satisfactory.

This company was one of the first to be in a position to take advantage of the liberal provision made in the Act passed by the Ontario Legislature, with a view of fostering

this new industry amongst the dairymen and fruit-growers of the province.

The cost of the building and plant complete was about \$6,000. The annual running expenses including power, attendance, insurance, taxes, etc., is about \$1,500. This amount is raised partly by two methods, viz.: 1. A regular charge is made for storing perishable products in the rooms as per the following schedule, baskets 2 cents per week, 5 cents per month; bushels 5 cents per week, 10 cents per month; cases of eggs, oranges or lemons, or barrels of apples, 10 cents per month, three months 25 cents, and other commodities in proportion. In some cases a regular rental for a room or a portion of a room is arranged for. 2. A small shipping charge is made against all fruit shipped through the company, which undertakes to attend to all the details of procuring cars and forwarding the consignments, as well as furnishing ice (from their own icehouse) for such refrigerator cars as may be required during the season.

This system has given great satisfaction to the growers and shippers of the district and it is expected to assume large proportions in the near future. In 1900 about 200 carloads of fruit were sent out; owing to the fruit failure last season the output was only about 100 carloads.

So far the company has been carefully making its way and has been studying the problem of handling and storing perishable products in the most satisfactory manner and the results are most encouraging.

The enterprise of the gentlemen who have taken hold of this industry in such a practical way is deserving of the success which seems assured.

The president and secretary-treasurer of the company are Messrs. W. H. Bunting and Albert Pay, of St. Catharines.

The fruit-growers of Clinton are forming a company for the shipment of fruit in this way, and no doubt such companies will be formed in many parts of Ontario.



FIG. 2269. TREE PROTECTORS AT CENTRAL EXPERIMENTAL FARM, OTTAWA.

The Tree Protectors.—By some oversight the cut representing the tree protectors used at the Central Experimental Farm, Ottawa, was omitted from the February number, page 58. They were made of elm, and applied in the autumn. They were very satisfactory in preventing sun scald and injury from mice. The cost was \$6.00 per 1,000.

Fruit Harvesting, Storing, Marketing is the title of a new book by Prof. F. A. Waugh, of Burlington, Vermont, which will very much interest those who are turning their attention to fruit culture, for we know of no other book covering the same ground. We are inclined to go further than the professor in some particulars; for example he leaves it as a matter of preference whether in harvesting apples they be packed at once, piled on the ground or taken to a packing shed. Now, in our opinion, the second plan is never advisable, for in such a heap exposed to sun and heat, the fruit will ripen rapidly. A cold storage house where the apples could remain until wanted, is ideal. Apples should not be rushed upon the market too fast, and this would avoid such an evil. But if one has not such a storehouse, then there is only one thing next

best, and that is to pack and ship as fast as picked, and let somebody else have the advantage of storing the fruit before it is over-ripe.

We would go further also in the matter of grading. He makes the terms Select, First Grade and Second Grade entirely relative, having no reference to absolute qualities. We would make First Grade to have an absolute meaning and include only apples practically free from worm holes, scales or any other blemishes, and $2\frac{1}{2}$ inches in diameter or upwards; excepting that for such dessert varieties as Fameuse,

Swazie and Jonathan, $2\frac{1}{4}$ inches should be the minimum diameter.

Grading by machinery is not commended by Prof. Waugh. Now, we do not see how it is possible to secure uniformity of size without a machine, and uniformity of size is of first importance.

There is a promise of a great apple crop this autumn, and storage should at once be considered, if the best results are desired. Nor can we too early secure the sale of our fruit in such a season.

A Useful Garden Barrow.—The accompanying illustration, which is taken from American Agriculturist, shows a good way

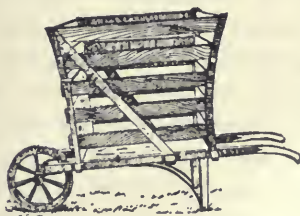


FIG. 2270.

of enlarging a common wheelbarrow's usefulness. For carting away light rubbish, vines, weeds, straw, dead tomato and egg plants, etc., it is just the thing. The attachment is simply a light rack frame fastened to the barrow in any convenient and simple manner.



FIG. 2271. COVER CROP IN ORCHARD.

Cover Crops.—Prof. F. A. Waugh, of Burlington, Vt., sends us a note on this head as follows :—Speaking of cover crops, one must remember that they differ in value the same as anything else. Here is a photograph of an orchard, for instance, with a remarkably heavy and luxuriant cover crop ; and yet those apples have not borne anything but lichens and yellow leaves for ten years. This cover crop consists of ferns, “brakes,” sedges and rank wild grasses, and has not been turned under since the trees were set, probably. This orchard, cover crop and all presents as fine an example of what not to do as one often sees.

Native Shrubs and Climbers.—In his address at Brampton, Mr. A. Gilchrist, of

West Toronto Junction, said it was unnecessary to go to great expense in buying exotic shrubs for our school grounds when we have so many desirable natives that will bear transplanting and that will be equally effective from a landscape gardener's point of view. For example the following is a list :

Native Shrubs.

Sweet Fern.	Purple-flowered Raspberry.
Dwarf Shadbush.	Maple-leaved Viburnum.
Chokeberry.	Round-leaved Dogwood.
Native Apple.	Ceanothus New Jersey Tea.
Common Elder.	Common Meadow Sweet.
Red Osier.	Scarlet-fruited Thorn.
Witch-Hazel.	Red-berried Elder.
American Holly.	Cockspur Thorn.
Sassafras.	Mountain Apple.
Silky Cornel.	Snowball Guelder Rose.
Leatherwood.	Shadbush juneberry.
Shepherdia.	Alternate-leaved Dogwood.
Snowterry.	

Native Creepers.

Virginia Creeper.	Bittersweet.
Honeysuckle.	Virgin's-Bower.
Native Grape.	Canadian Moonseed.
Ground-nut.	Wild Bean.
Smilax.	Cat-Brier.

Native Trees for School Grounds.—Mr. Gilchrist also gave a list of native trees which are desirable, and we publish them here because soon Arbor Day will return and the boys and girls will want to know what they are to do. What could be a better lesson than to go to the woods and seek to identify and bring back one of each of the following list to plant on the school grounds ?

Pin Oak.	Black Walnut.
Swamp Hickory.	Slippery Elm.
American Aspen.	Tulip Tree.
Hornbeam	Chestnut.
White Birch.	Shell Bark Hickory.
Swamp White Oak.	Corky White Elm.
Basswood.	Balsam Poplar (Balm of Gilead.)
Beech.	Paper or Canoe Birch.
White Elm.	Chestnut Oak.
Sugar Maple.	Pignut Hickory.
Red Oak.	Mountain Maple.
Butternut.	White Pine.
Mossy Cup White Oak.	White Spruce.
Black Ash.	Balsam Fir.
Buttonwood.	Hemlock Spruce.
Silver Maple.	Black Spruce.
White Ash.	Red Pine.
Red Maple	Larch or Tamarac.
White Oak.	

MEN WHO HAVE SUCCEEDED.

HENRY DALE, FLORIST, BRAMPTON.



FIG. 2272. MR. HENRY DALE.

FOR the inspiration of our young men who have in our fair Canada so many avenues open before them, but who so often lack that ambition which leads them to seek after advancement, we have undertaken to write a few sketches of men who have succeeded.

Of the long list of such worthy men, we may well speak with pride of Mr. Henry Dale of Brampton, who began at the very bottom and rose to the top of the ladder of success.

Some years ago he came from England to

Brampton with his father, Mr. Edward Dale. At first the lad was apprenticed to a shoemaker, but this was not to his mind, and he persuaded his father to start a small truck garden for Brampton market. Then, about 1870, he induced him to buy a small greenhouse, which they operated in partnership, utilizing the experience which the latter had gained in England as a market gardener. In this greenhouse, which was only twenty-five feet long, and was heated with the old fashioned flues, they grew vegetables and pot plants; it is still standing and may be seen in our engraving, just next the Dale home.

From the very first the demand for their roses exceeded the supply, and enlargements were necessary. After two or three years, two houses were added, fifty feet long, for spring stock and bedding plants, in which they also planted some Marechal Neil and Larmarque roses. On these they budded Sunset and Pearl, and took the bloom in boxes to Toronto, selling it to Mr.

Fleming, who was so long a prominent florist on Yonge Street.

In about 1880 Mr. Edward Dale gave the cut flower business up to his son Henry, who had always been the life of it; rose and carnation houses were added from time to time, indeed, of late almost every year, until now about seven acres of ground are under glass.

The greenhouses require 36 boilers of fifteen horse power each for heating them, and have automatic machinery for furnishing the coal so as to economize the labor as much as possible.



FIG. 2273. THE DALE GREENHOUSES.



FIG. 2274. IN THE DALE GREENHOUSES.
View in Rose House, showing new style of benches.

Six of these rose houses are 840 feet long, and contain about three acres of roses. These are cut morning and evening, through the winter, but in April and May during the height of the season, from 6000 to 10,000 blooms are cut daily and shipped away wholesale to the large cities of Canada and the United States, at prices varying from \$6.00 to \$30.00 a hundred.

The death of Mr. Henry Dale, which occurred in July, 1900, at the age of forty, was a shock to his large circle of friends, whose sympathy evidenced itself in a wealth of floral emblems from the many societies of which he was a member, and from his many personal friends.

A Visit to the Greenhouses—Happening to be in Brampton on the 7th of March, we were received most cordially by Mr. T. W. Duggan, the manager, and conducted through these extensive greenhouses. "Already," he said, "we have the leading business in America in the cut flower trade. We have now 300,000 square feet under glass, and intend to add 100,000 more this spring ;

indeed we have doubled the amount of glass since Mr. Dale's death."

Will you not over do the thing and produce more cut flowers than you can sell to a profit ?

"No," said Mr. Edward Dale, the foreman, "it is not likely, because we are only building what we are forced to do to supply the demand. We must build or some one else will have to grow flowers to satisfy the growing trade."

Do you grow many varieties of roses ?

"No," said Mr. Duggan, "about six or eight varieties are all that will pay to grow for the cut flower trade, and of these the chief are the Bride and the Brides-maid. Next to these the new rose, J. Pierpont Morgan, which you see is a free bloomer, and a perfect flower. Next would come the Sunset ; and then the Meteor, Perle and American Beauty."

Are not these benches lower than usual ?

"Yes," said Mr. Duggan, "these are quite a new style, but vastly better than high ones. You see they are of brick and built over tiles which secure perfect drainage, and also perfect circulation of warm air."



FIG. 2275. IN THE DALE GREENHOUSES. A
A view in one of the Carnation Houses.

What soil do you use?

"The soil," said Mr. Edward Dale, "is made from the old turf off a clay loam meadow. We cut it six inches deep, and pile it over winter, then in spring mix it with a little manure, and fill up the benches. The old earth we take out every year and put it back on the meadow."

How often do you water?

"About twice a week, oftener if necessary, using the hose. This, we are using to-day, is manure water, which we apply about once in three weeks."

What are your chief insect enemies?

"The green fly and red spider. The latter we kill with constant sprays of water, and the former we kill with fumes of nicotine."

Do you propagate the roses by budding?

"No, we find grafting easier. One man does it all. We splice graft them while in these small pots, using no grafting wax, simply tying with a string, then we place them for a few days under cover where the air is very moist. This season we have grafted about 35,000, and about 98 per cent. have grown."

What are the commercial varieties of the Carnation?

"The best," said Mr. Edward Dale, "are Glacier (white), Marquis (pink), Roosevelt (crimson) and Crane (scarlet). These of course we replant every year, and we set about 100,000 plants. We set the young plants out of doors for the summer, and put them on benches in September, by which time they are good and stout."

What is your method of ventilation?

"It is automatic. These boxes enclose a thermostat, a delicately adjusted instrument, which regulates the water pressure, and can be arranged to open the sash at any desired degree of temperature."

We came away quite thankful for the kind attention we had received and quite impressed with the possibilities of life. Brampton is a interesting old town, with intelligent and progressive inhabitants, but with no special advantages for the location of such a greenhouse; yet with nothing but sheer ambition and business devotion, Mr. Henry Dale has worked up the leading cut flower trade of North America.



FIG. 2276. IN THE DALE GREENHOUSES.
A view in the Violet House.

THE SAN JOSE SCALE.

AT a meeting of the Niagara Peninsula Fruit Growers' Association held in St. Catharines, on the 8th of March, representatives were present from many parts of this extensive fruit district. A report of the San Jose Scale committee was presented by Mr. W. J. McCalla which was as follows:

Notwithstanding the efforts that have been put forth during the past year looking to the destruction of this pest, the Scale is still with us and in increasing numbers. So much so that those whose orchards are infested, are becoming greatly alarmed at its progress, and the resulting damage; while those whose orchards are not known to be infested are waking up to the great danger which menaces them.

Your committee regret that they have not had an opportunity to personally visit and thoroughly examine many of the orchards in which Scale exists, but by diligent inquiry, and by observations which they have been able to make, have arrived at the following

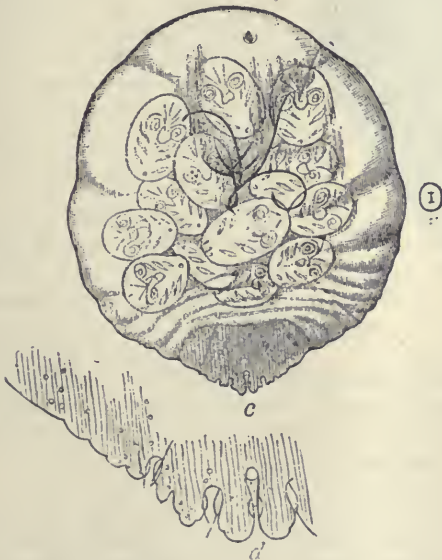


FIG. 2277. FEMALE SCALE (HIGHLY MAGNIFIED).



FIG. 2278. CUTTING INFESTED.

conclusions, and beg to submit them for your consideration.

1. That in view of the serious danger resulting from this insect, it is the duty of this association to urge upon its members and the public generally the necessity of making every effort wherever scale is located, to induce those interested to co-operate with the inspector and his assistants in their work, in order that a full and complete inspection may be instituted in all such orchards with a view to control and if possible eradicate this insect.

To this end it is very necessary that as a preliminary operation, all infested trees and orchards, if not already attended to, be at once thoroughly pruned and cleared of all surplus and unnecessary branches and loose bark, or anything which might prevent the spraying material reaching all the scale.

2. That the materials and methods which from past experience and the most reliable information, give promise of the best results, are the following:

- (a). For all trees, except peaches and cherries, crude petroleum, a 20 or 25 per cent solution in combination with water. For peach trees, whale oil soap, $2\frac{1}{2}$ lbs. to the gallon of water. In the case of the crude oil, care should be taken to cover the tree but once, and in order that an undue quantity of oil be not used a very fine nozzle should be employed.

(b). That a combination of whale oil soap and crude petroleum in the proportion of one pound of soap to the gallon of water, with a 25 per cent solution of crude oil added, has proved very satisfactory in destroying the scale.

(c). That the lime, sulphur and salt treatment, which is in general use in California,

dealing with them is to destroy them at once by fire.

(e). That inasmuch as great danger of the further spread of the scale may result from nursery stock which might be infested, it is hoped that the law in respect to fumigating all such trees and plants be rigidly enforced.

3. That this association urge upon the Department of Agriculture the desirability of supplying a few suitable combination pumps in certain localities where scale exists, where the properties are small and where no suitable pumps are in the hands of the owners, and if possible at least six of these pumps be furnished in time for this season's work, and that they be placed in such sections as the inspector shall deem most expedient. It would also seem necessary to employ competent men to operate these pumps, whose services should be paid for by those desirous of availing themselves of their assistance.

4. That the amendment to the San Jose Scale Act, as amended and introduced by the Minister of Agriculture, receive the hearty approval of this association, and it is recommended that the various municipalities of this district take steps to put it into force.

5. That this association again put on record their appreciation of the efforts put forth by the Minister of Agriculture of this Province in assisting and furnishing

material for treatment on such liberal terms, and for the great interest taken in this matter ever since the discovery of Scale in this country.

We moreover believe that these have resulted in confining the Scale largely to those sections in which it was originally located.

It is hoped with the knowledge gained and with a more thorough and complete use of

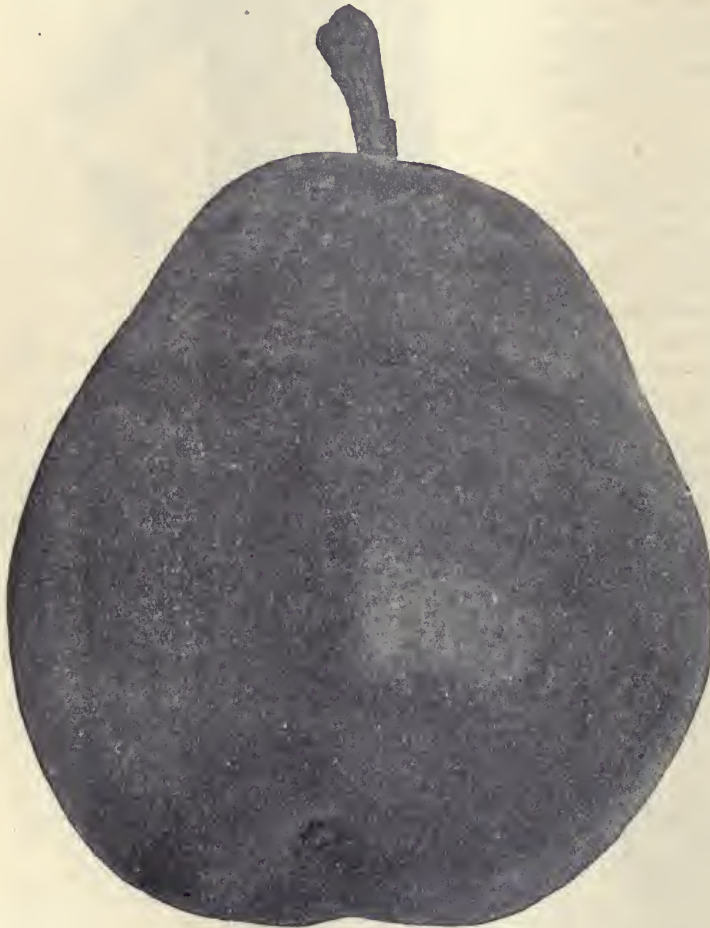


FIG. 2279. EXPORT PEARS—THE DUCHESS.

while tried in this country in as yet but a very limited way, has nevertheless given evidence that it may prove very useful here, and it is suggested that this treatment be given a more extended trial during the coming spring and summer.

(d). That where peach trees are badly encrusted, it is the opinion of your committee that the best and most satisfactory way of

the proposed methods of treatment, that the coming season may see some very tangible results in reducing the infestation of Scale in all localities where it may have obtained a foothold.

"Will crude petroleum kill the cherry aphid?"

asked one who had lost his whole crop by it. The inspector said, "Yes, if applied early enough."

"When is that?"

Just before the leaf buds open. The young lice hatch out in advance of the leaves, and may be seen with the microscope to be quite lively at that time. That is the time to kill them with crude petroleum, or with kerosene emulsion. "With the former," said Mr. Fisher, "don't hold the nozzle in one place till it drips; just apply a thin mist, and you will do the trees no harm, while you will destroy the aphid."

Cherry Aphid.—Mr. D. J. MacKinnon at the same meeting asked if the cherry tree would bear treatment with crude petroleum for aphid. Mr. G. E. Fisher said they should receive a very light application. The ordinary vermorel nozzle has too large an opening, but with a smaller opening, about the 40th of an inch in diameter, it would be possible to treat all kinds of trees with crude petroleum, before the leaves were opened, without evil effects.

Seasonable Work.—People have queer ideas, continued the inspector. They waste their time spraying out of season. This is the time to prepare your trees, and get ready. The trunks must be scraped; the trees must be closely pruned; the pumps

and nozzles be put in order, and all other work got out of the way so that about May 1st, when the buds are nearly ready to open, nothing will be in the way of doing thorough work.

* * * * *



FIG. 2280. EXPORT PEARS—ANJOU.

PEARS FOR EXPORT.

Pear growing for export was the subject of a most practical address at the same meeting by Mr. D. J. MacKinnon, of Grimsby. A few years ago, he said, I purchased a worn-out farm, of which the lower part was not planted. The soil of this part consisted of a black clay loam from 12 inches to 2 feet in

depth, and the subsoil was a quick sand, almost always saturated with water. This I prepared for my commercial pear orchard by a complete drainage system. Through the lowest part I ran a drain five feet deep to the lake, and into this I ran side drains 60 feet apart, so fitted as to empty vertically and never clog.

Varieties.—Being satisfied that pears in cold storage would carry safely to the

ers, and that is the fault I find with that variety."

"Top graft them on some good grower, and they would do better," was the reponse.

"What is the *Hardy* like?" asked a grower.

"It is a beautiful, smooth, even sized variety, of excellent quality, of about the same season as *Duchess*: the tree is vigorous and never blights."

"What distance apart did you plant?"

"Well, for the most part the rows are twenty feet apart, and the trees ten feet apart in the rows, every other a dwarf. I wish now they were all about 16 x 16, and the dwarfs by themselves."

Tillage.—I gave the pear orchard clean tillage at first; but later I tried rape, crimson clover and cow peas, and they all seemed to fail on stiff clay, without a special manuring. Clean tillage I found induced pear blight; so I sowed clover, and since have not applied barn manure to my pear orchard, and indeed the soil has not seemed to require it, for I have had beautiful large, high colored fruit, and excellent growth of wood on the trees. Crimson clover has done well with me; I sowed it in July, and cut it in the following June, disked the

ground, and it reseeded itself. I ploughed the ground in July, a week or two after it was cut, and it came up a thick heavy crop, too deep rooted to be scalded by the hot sun.

* * * * *

Fruit Growers' Institutes.—Mr. L. Woolverton addressed the meeting in the absence of Secretary Creelman, on the advantages



FIG. 2281. EXPORT PEARS—BARTLETT.

British market, I next planted 2,700 trees. I planted too many varieties.

"What varieties would you plant now?" someone asked.

"I would plant *Duchess*, *Louise*, *Bartlett*, *Anjou*, *Kieffer* and *Hardy*."

"I would add *Howell* to the list," said the writer, "and *Bosc*."

"Well, my *Bosc* trees are not good grow-

of the affiliation of all local Fruit Growers' Associations with the Provincial Society, so as to work in greater harmony. The plan of work would be somewhat like that of the Farmers' Institutes, and meetings would be held during March and April over the whole country, and be addressed by a fruit expert. The membership fee would be 25 cents. Mr. W. H. Bunting also spoke on the same subject, viewing the scheme with much favor, and he moved the following resolution which was unanimously passed, viz.:

Resolved that this association learns with pleasure that the Department of Agriculture has taken steps through the Secretary of the Ontario Fruit Growers' Association, Mr. G. C. Creelman, towards organizing throughout the Province in the various agricultural district, Fruit Growers' Associations which will affiliate with the Provincial Association, and will be a channel through which the fruit growers of this Province may act in unison on matters which may arise in which concerted action may be advisable and necessary.

* * * * *

ORIGIN OF THE AMERICAN GRAPE.

Dr. Jessop, M.P.P., of St. Catharines, gave an address on the origin of the American grape, which was very instructive. It dealt with the origin and history of the *Catawba*, that first great American grape, still one of the leading varieties in cultivation, found wild in North Carolina in 1802; the *Isabella*, introduced from South Carolina into New York State in 1816 by Mrs. Isabella Gibbs; the *Diana*, a seedling of *Catawba*, exhibited at Boston in 1843 by Mrs. Diana Crehore, the originator; the *Concord*, a seedling introduced by Mr. E. W. Bull, of

Concord, Mass., about the year 1850; and the *Clinton*, now widely used in Europe as a stock on which to graft other varieties because of its immunity from the dreadful phylloxera.

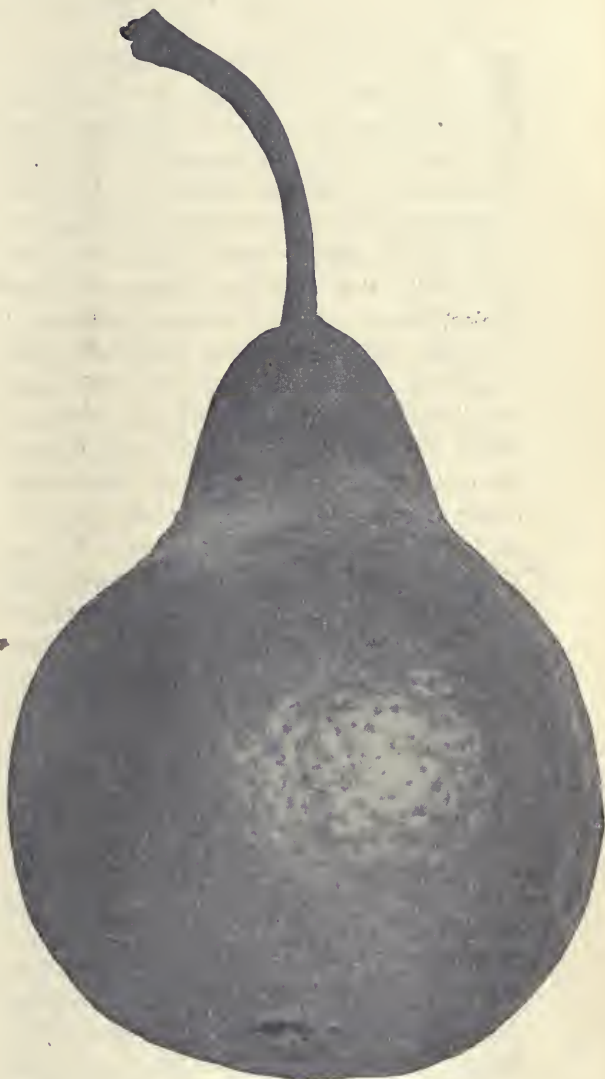


FIG. 2282. EXPORT PEARS—THE BOSC.

THE FRUIT GROWERS OF PRINCE EDWARD ISLAND IN PARLIAMENT.

FATHER BURKE THE NEW PRESIDENT.

IF any note more than another ran through the recent annual meeting of the Fruit Growers' Association of this province, that note was hopefulness. There is great hope in the fruit industry all over the Federation, and Prince Edward Island is especially hopeful. She knows now unmistakably that she can grow excellent apples, plums, cherries and even pears; all the small fruits and berries she likes; there is no serious pests menacing her orchards; no dishonest packers within the borders; she is nearer the great British Market than the rest of Canada, and her sons are awakening to the great things that are for them in fruit-growing. The governments, too are recognizing the value of the work the association is doing, and we are disposed, both Federal and Provincial, to act more generously with it in future. We are agog, then, with expectation.

Briefly, we might say that the usual range of association matter was traversed. at Charlottetown, on the 11th. President Bayfield's address narrated the steps taken during the year and pointed out the new year's duties; the papers by J. S. Clark and Richard Burke, Fruit Inspector, on "Apple Growing Generally" and "Cranberry Culture" and the numerous able addresses, by Judge Fitzgerald, F. L. Hazard, K. C., Professor Macmillan, John Newson, John Robertson, J. H. Gill, J. Guard and, John Johnston, on some phase or other of Horticulture, gave the meeting all it could well consider. And I had pleasure in interpreting the message of good will and God-speed confided to me by the Association of Ontario, which was joyfully received and

heartily reciprocated. I also, attempted to convey a few of my impressions on your splendid organization, your meeting, your men, and what you transacted at Cobourg. An interchange of experience does much good.

The work of the Annual Meeting is synthesized, in its resolutions. We were anxious



FIG. 2283. EXPORT PEARS—THE LOUISE.
(Page 141.)

to help on the general demand for better transportation, cheaper carriage, more honest packing, and a proper appreciation of the possibilities of this fruit interest of Canada. There has been so much reported on those subjects that it would not be well to load your columns with anything of what was said here. These resolutions were forwarded to the right quarter:

Moved by Mr. John Newson, seconded by Rev. R. E. Burke,—

Whereas great dissatisfaction prevails all over Canada, owing to the exorbitant rates charged by railways in the carriage of fruits in barrels or otherwise; and whereas the matter has without any good result been repeatedly brought to the notice of such railway corporations, by resolution and delegation.

Therefore resolved, as a means to the proper adjustment of this important matter, Parliament be and is hereby requested to name a competent and representative railway commission for the equitable regulation of the transportation question.

Rev. A. E. Burke, moved the following, seconded by Mr. J. H. Gill,—

Whereas it is vital to the fruit exporters of this province to have a properly equipped steamer leave Charlottetown for England at a regular period in the late summer and autumn months at least;

And whereas great inconvenience and loss have occurred in the past owing to this great want;

Resolved therefore that the government be requested to secure in time and properly advertise the sailing of some well equipped ocean liner, so that the fruit-growers of this country may take advantage of well ventilated holds to transfer their apples to the markets of Great Britain.

F. L. Haszard, K. C., moved, seconded by A. A. Moore, that the Federal Government be requested to appoint a competent person to travel throughout the province and give instruction in orchard planting,

cultivation, grafting, pruning and generally in all the operations of orcharding.

Judge Fitzgerald, as supplementry to his remarks on the necessity of beautifying the province and particularly attending to school grounds, moved, seconded by D. P. Irving, M. L. A., that the Department of Education be requested to address a circular letter to the several school districts, asking that a special effort be made this spring to have Arbor Day observed by the planting of shade trees about the school houses.

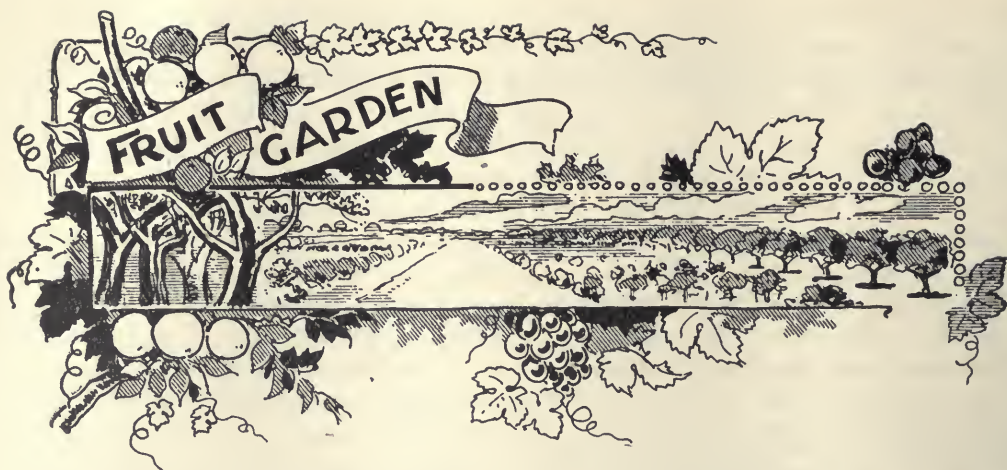
A number of other minor resolutions were gained and the usual vote of thanks, condolence, etc., passed. The sympathy of the meeting was extended to the late president, H. A. Stewart, of Hamilton, since dead. Mr. Stewart was a true friend of Horticulture and his devoted services to the Fruit Growers' Association of Prince Edward Island, will be long remembered.

The elections resulted in favor of Rev. A. E. Burke, for president, J. Johnston, vice-president and Albert E. Dewar, secretary. The Board of Directors contains a few new names; William Wells, Alberta; James Ramsay, Hamilton, and John A. Annitt, Manitoba, having never before served.

The question of bringing the Fruit Growers' Association into closer touch with the Institute system, was mooted, but no action taken. Professor Macmillan expressed his desire of doing all he could to forward the association's work. The new officers will certainly prosecute a vigorous and enlightened policy in the interest of Horticulture, and with the assistance of the Federal and Provincial Department of Agriculture, can easily make 1902 a banner year in Prince Edward Island, may we move forward together all along the line.

A. E. BURKE.

Alberton, P. E. I.



THE QUARTER ACRE STRAWBERRY PATCH.

BY T. C. ROBINSON, OWEN SOUND.

HOW CAN A STRAWBERRY CROP BE SUCCESSFULLY PRODUCED ON A SMALL SCALE?

THIS is a burning question. Our cities and large towns are well supplied with berries, particularly in the Western Peninsula of Ontario, and the business of supplying them is well done, if not overdone, by large growers in the Oakville and Niagara districts. But there are many villages and small inland towns that are very poorly supplied, and the price is consequently high. Such markets offer the largest profits to the small grower, and many a family with only a large garden and small means might be greatly assisted in the battle of life by raising one or two thousand quarts. Hitherto such parties have been hindered not only by lack of familiarity with the best methods of culture, but by the first cost of the plants. Many, doubtless, would be glad to try it if they could know how easily the strawberry can be raised, how well certain varieties will bear with very little manure, and especially if they knew of some way of applying "com-

mon sense and elbow grease" so as to reduce the preliminary outlay.

Besides this class there is the multitude who, finding the price of berries so high in districts remote from the great fruit-growing districts, would like to grow an abundant supply for family use. It is to these classes that the following plan may be of special interest.

First Then as to Soil.—Any good garden soil will raise good strawberries. A good clay loam will perhaps raise the largest crop, but the fruit will not be early, the soil will require more labor to keep it nice and loose, and it must be free from standing water at all seasons, except just after a shower. A good gravelly loam will often give remarkable results both as to amount of crop and size and quality of fruit. Probably the best soil for the purpose is a well-drained loam containing sand and clay in about equal quantities. But even the lightest and poorest sand or gravel that ever grew corn or white



FIG. 2284. EXPORT PEARS—THE HOWELL.
(Page 141.)

beans, will not refuse to grow strawberries enough to please the horticulturist, if he chooses suitable varieties and gives them fair treatment. As a rule, the lighter the soil the earlier the crop. Earliness is also favored by a slope of the land towards the south or southeast. Heavy land inclining towards the north will give the largest and latest fruit.

Manure.—With the land comes the question of manure. A land of natural fertility is generally preferable—almost new land or land broken up from pasture or a clover crop a couple of years previously. But pasture land is unsafe the year it is broken up, and sometimes the next year, because it is apt to be infested by the dreaded "White Grub," which loves to feed on the roots of

the strawberry plants. As a rule, the richer the land the more profitable the crop. You cannot easily insult the strawberry with manure. Fifty loads to the acre would just suit some varieties, while others will not refuse a crop with none at all. It is strawberry wisdom to give just what you can afford. Let us suppose you apply five loads to the quarter acre.

Now if the soil is selected, but the manure has not been applied, **don't plough it under.** Strawberry roots feed near the surface, and and the essence of the manure may go down, but will not come up. So plough the land first. Then put on the manure. If it is well rotted, all the better. If it is even quite fresh, still it will do. It will do if it is well worked in. The fresher it is, the more it must be harrowed in, or it will scorch the roots. Get the disk-harrow on it first, especially if there is much straw in the manure.

Then let the common harrow, or better still, the spring tooth harrow, run up and down, cross-wise, and angle-wise, again and again; then, if any straw stuff shows, get a good heavy roller driven over it, then cut into it all over with the disk-harrow once more, smooth it with the back of the common harrow, roll it finally and send the team home. A good half-day's work of a good team thus **fining** the land will be a fine investment. If the manure was well rotted, you had better plant immediately; but if it was rather fresh, give it a week or ten days to part with its inflammation to the gentle poultice of the soil. Have the land all ready for planting about 20th April if situated in the warmer parts of Ontario, or by 1st of May in the colder districts.

Planting.—Now for planting. The most convenient way to arrange the row will be to use a marker. A sort of sleigh-runner arrangement that any man can make in an hour or two will be convenient. One cross piece of thin batten or siding, 12 feet long,

with little "sleigh-runner" pieces nailed underneath, 3 feet apart—each runner 16 or 18 inches long—the whole pulled by a couple of 10 foot handle pieces united by a cross piece at the outer end and well braced to the long cross piece will make five marks a yard apart; and by letting the outside runner go in the last mark every trip across the patch will mark out four more rows. But the long cross piece must be thin enough to bend readily, or else when you pass over some slight elevation or hollow in the land you will find one or more of the "runners" riding in the air instead of marking. Now when your patch has all been marked for the rows, it is well to go over it again cross-wise and mark where each plant is to stand in the row. If you have lots of plants or plenty of money to buy them, you can secure an immense crop by setting the plants every foot or fifteen inches, and you can increase the crop still further by setting out the rows in pairs only a foot apart with paths two feet wide between each couple of rows and the next. By keeping the runners off and the ground free from weeds and then "mulching"—that is covering ground with straw or waste hay, or, better still, with a two inch coating of half rotted manure in September, the loose strawy parts to be drawn up over the plants in November, when pretty well washed out by the late fall rains—you will have ensured the largest crop of the finest berries, so far as one season's human efforts can do it with the means at command.

But a quarter acre patch set out by this method would require about seven thousand plants, which, if to be purchased, would entail far too much expense for most people. I propose to show how it can be done with only

about one sixth of that number—and well done—and the time spent in planting will also be far less, but it will take more time later on. To this end I advise setting the plants over three feet apart in the row. Take the same 3 ft. marker and run it across the rows. Do not run it "square" across, but **diagonally** at an angle of about sixty degrees. Then when a plant is set at every point where the marks cross, the plants should stand slightly over forty inches apart, and each plant will be exactly opposite the middle of the space between the nearest two plants in the next row, and so on; that is, every plant will be just about 40 inches from the nearest plant in every direction.

This will make it possible to save nearly all hoeing for nearly half the summer by running the cultivator across the rows as well as lengthwise. I recommend the common hoe as about the best tool for planting by this method. Let it be one with a large blade. The common happy-go-lucky style of spade-planting will not do when the plants are so far apart. You want every plant to live, and with fair treatment they may. Strike with the side of your hoe in



FIG. 2285. EXPORT PEARS—THE KIEFFER.
(Page 141.)

the middle of the mark, and scoop out the earth as deep as the length of the roots that are to go in. Make only twenty or thirty holes before you plant, if you are doing the work alone, keeping the roots of the plants meanwhile in wet moss or moist earth, **but not in water** lest they rot. Give each plant a jerk, to spread out the roots as you put it in the hole; lean it against the side next the mark, and set it so it will stand nearly an inch deeper than it stood originally, to allow for the settling of the soil; but be careful not to cover the crown—that is the top of the thick stem from which all the leaves spring. Now scrape with your foot about half the soil that was floed out back in on

the roots so as to cover them well up to the stem, and then step in the hole. Do not be afraid to lean your whole weight on the soil just over the roots. It is life to the plant to **firm** it well.

Now if the soil is rather dry, and the day hot, this is the point to apply half-a-cupful of water, and let it soak away before filling up. But in early planting, the plants are so nearly dormant, and the soil so moist that that no watering will be needed. Just scrape in the rest of the soil with your foot and go on, but be sure to leave it as loose as possible on the surface. Now you will find it has taken only a little over one thousand plants to set out your quarter acre.

OUR FRUIT INTERESTS DISCUSSED.

THE FRUIT MARKS ACT.

WHEN a man does wrong in any of his public dealings he never does it because he loves to do it but because his neighbor is permitted to do it. When he packs his apples for market he does not put the large ones at each end of the barrel and his culls in the centre because of any natural inclination to cheat or deceive, but because his neighbor is allowed to do it, and he cannot afford to let his neighbor have an advantage over him. Now that the Fruit Marks Act has been introduced and is being enforced, the farmer or fruit grower is hard to find who does not approve of it and hail it as one of the best things that the Fruit Growers Association has yet done for the general public. I meet with many farmers and in speaking of the Act they all admit that it is a good thing,

and that we will soon have honest packing if it is properly enforced.

Mr. Elmer Lick will bear out the gist of this testimony, I think so far as this County is concerned. Mr. Lick visited this County in institute work, and I never saw a greater interest taken of the farmers generally in what a speaker had to say than they did in Mr. Licks talks in connection with the Fruit Marks Act, and the handling and shipping of apples generally. On the working of this new measure and the result that it is aiming at, Mr. Lick could speak with authority and he found the farmers willing and anxious to hear him. No fruit representative ever did better work, work that left an impression, and calculated to lead to good results than Mr. Lick did through this district this year. The Fruit Marks Act is all right, and it is

already evident that the public are going to accept it as a good thing.

Mr. W. N. Hutt did an equally good work in another line which must lead to good results through this western section of the province. It is in fact greatly to be deplored that there are very few new apple orchards being planted, and very little care given to the old ones through many sections of the west now-a-days. I think I see in the Fruit Marks Act, and the object lessons which Mr. Hutt is giving in pruning and grafting, a fair promise of a revival in apple culture. I happened to have charge of the Institute meetings in one or two localities here when Mr. Hutt was in the Country, and was told that it would be time wasted to start him talking about pruning apple trees. I took the risk, however, and the result was most gratifying. Mr. Hutt's object lessons in

pruning are still being talked about, and if they could be supplemented in a number of localities not reached, I know the results must be good. Mr. Creelman I believe, has in view a scheme that will meet this suggestion, as soon as he can secure a sufficient staff of practical demonstrations to meet the requirements of the several districts yet untouched. He cannot get his scheme into operation too soon, and he cannot get any man who will do it fuller justice than Mr. Hutt. If all the other apple growing districts of Ontario have been as well served as this one has been this year by Mr. Lick and Mr. Hutt, we may look for an early and general revival in the interest taken in apple growing throughout our magnificent province.


T. H. RACE.

Mitchell.

SOME INSECT ENEMIES AND HOW TO FIGHT THEM.*

BY PROF. W. LOCHHEAD, O. A. C., GUELPH.

THE PLUM-TWIG GALL-MITE.

N Feb. 27th, I received from Mr. Geo. E. Fisher, Freeman, Ont., a package of plum twigs which had peculiar rings of small, gall-like growths at the base of nearly all the buds. Mr. Fisher stated in the letter of transmittal that the twigs were obtained from an orchard near Queenston, and that the orchard was suffering from the injuries sustained.

On cutting open one of the galls, I saw at once that the interior (often with more than one cavity), was filled with a large

number of minute white mites, which at this season are dormant. Under the microscope they were seen to be elongate-oval, four-legged, and provided with whip-like appendages at the tail end. Unacquainted with this particular form of mite, I applied to Dr. Howard, of Washington, for information, who informed me that the mite was the Plum-Twig Gall-mite of Europe, *Eriophyes (Phytoptus) phloeocoptes*, and that it had probably been intro-

*Notes from the Biological Department of the Ontario Agricultural College.

duced from Europe on plum stock. It appears that this Gall-Mite is now quite widely distributed over the north-eastern part of the United States.

Prof. Slingerland, of Cornell University, described the work of this same mite in the December number of the Canadian Entomologist for 1895. His specimens came from a plum orchard in Pennsylvania.

So far as I am aware, the life-history of the mite is not well known. It appears, however, to migrate early in the spring from the gall to found new galls. This fact suggests two lines of treatment: 1st, to spray with kerosene emulsion or whale-oil soap solution, when the mites are leaving their winter quarters; and 2nd, to prune heavily in early spring, cutting away as many of the gall infested twigs as possible, and burning these immediately. It is doubtful if the first treatment could be carried out with any degree of success, for the mites are so minute (about 1-180 inch long), that few orchardmen could observe the migration. Besides, we are not quite certain as to the exact date or time of migration.

The pruning treatment seems then to be the only practicable one, and if the method be carefully followed for one or two seasons it will have a decidedly beneficial effect.



FIG. 2286. PLUM-TWIG GALL-MITE.
Two Plum Twigs affected by Plum-Twig Gall-Mite.
The galls (a) are small and are arranged in circles at the base of the buds.

APRIL.

The pretty herpaticas hid in the brake,
Are calling the alder and cat-kins to wake;
Miss Dogwood is dressed as a beautiful bride,
And seeks in the shadows her blushes to hide.
The bonny-blue violets rustle and glow,
All wrapped in their flannels tucked under the snow!
Thy feet, welcome April, I hear on the hills,
And thy laugh in the sound of each girgling rill.
The old brown is turning to emerald hue,
And the meads and the woodlands are clad in the new!

I joy in thy brightness, I drink of thy light,
Kiss the hem of thy garment all brodered with white.
With a smile on thy lips, and a tear in thine eye,
Thou art come fickle April, so lovely and shy!
All birds are thy orchestra, glad in thy wake,
The prince of the forest, the mountain, the lake!
The earth owns thy power on land and on sea—
Oh, welcome sweet April, thou child of the free!
The ice king recedes when thy step draws a near,
And the tulip and crocus cry, lo, spring is here!



SEASONABLE NOTES FOR APRIL.

THE unusually fine weather experienced here in this section of Ontario during the early part of March, makes it somewhat difficult at this date—March 12th—to outline very closely what operations may be necessary or adaptable for the month of April amongst the plants and flowers. With the mercury registering about 52° at midnight, 70° in the shade at mid-day, and the pleasant warbling of robins and greybirds greeting one on every side, to say nothing of reports of sowings of sweet peas, etc., having already been made in the open ground, it is difficult to realize that we are yet three weeks and more from the beginning of April, or yet clear of winter weather. It is spring seasons such as this that tempts those who have tender or half hardy plants to expose them somewhat too abruptly from their warm winter quarters to the uncertain weather conditions that often follow these seductive spells of summer in early spring. The transfer of plants from their winter quarters to out door life always requires the exercise of care and discretion, much more in seasons such as the present one when spring promises to be unusually early.

A word or two of timely warning may prevent the loss of some favorite plants. I am aware from my own past experience that reminders of this kind are necessary at this season of the year, when we are perhaps too eager in anticipating the delights of summer in the garden, by undue haste in exposing tender or half hardy plants to uncertain weather conditions outside.

THE GREENHOUSE.

Bedding Plants.—The latest struck cuttings of these should now be potted off, so as to become established in the pots prior to being hardened off outside later on.

As a rule carnations, geraniums, mignonne, early sown asters and other comparatively hardy plants can be transferred to a cold frame outside. A sash as well as other protective material should, however, always be in readiness to cover them up with in cold weather. Coleus, heliotrope, lobelia and the more tender varieties are safest in the greenhouse until all danger of frost is past. It is always wise to shade plants for a few hours in the hottest part of the day for perhaps a week until the growth has become hardened to the more exposed position that

a sash and frame gives, especially if the plants have been kept in a very close greenhouse. The little dwarf growing bedding plants known as alternanthera are often very difficult to secure cuttings from for propagation purposes. A good warm (not rank) hot bed is the best place to put stock plants of alternanthera in to secure rapid growth. Plunge the pots or boxes into earth or ashes up to the rim and keep them close except on sunny days. Young plants as well as stock plants can be made to move rapidly by this treatment. Heliotrope, coleus and achyranthes can be treated in the same way, but these last mentioned require more air than the alternantheras do, on bright days, and perhaps a little shade on very hot days.

Cannas.—Roots of these plants should be brought from underneath the benches or from the warm cellars where they have been wintered in. If the clumps are large it will be best to divide them up into clumps having from two to four good strong eyes. This can be done by simply breaking away the one section from the other with the hands. The use of the knife in this operation should be avoided if possible. Pot the small clumps up into fairly light soil and water thoroughly once. Very little water will be required afterwards until the plants have become well established. Cannas treated in this way can be brought on early and give immediate results when planted out. The pots of these can be stood down on the walks to start them, if the situation is not too dark, and care is taken that they do not get too much water. The possibilities of the canna as a summer decorative plant are only commencing to be realized. The recent introductions of dwarf growing, large flowering plants will assist greatly in advancing their present popularity. It is quite possible, taking the coleus as an example in this respect, that we may see as great an advancement in cannas in regard to decorative foliage during the next decade as there has been with coleus, when compared

with the first introductions of the "East Indian Nettle," as coleus where at first commonly termed. Imagine a canna of dwarf habit than the Charles Henderson (three feet), a spike of flowers equal to the flowers of the Burbank Canna, and foliage that will vie with the beautiful markings and rich coloring of a pandanus veitchii, or of a spotted diffenbachia, or with the deep rich shadings of a maranta; and you will have an imaginary glimpse of what I predict will be a near approach to the ideal canna of the future. But this is prediction and not seasonable notes on the culture of the canna.

The foliage of the canna, especially when young, is very tender, and on that account requires care on first taking the plants out of doors. Late in May or early in June is about the best time to expose them outside.

Shading.—Plants will require careful shading and an increased supply of water as the heat of the sun increases. Water and syringe the plants early in the day. Close ventilators early in the afternoon. Give increased ventilation as required.

The Herbaceous Border.—About the end of April or early in May is the best time to attend to herbaceous plants in the flower garden. Any dividing or transplanting of

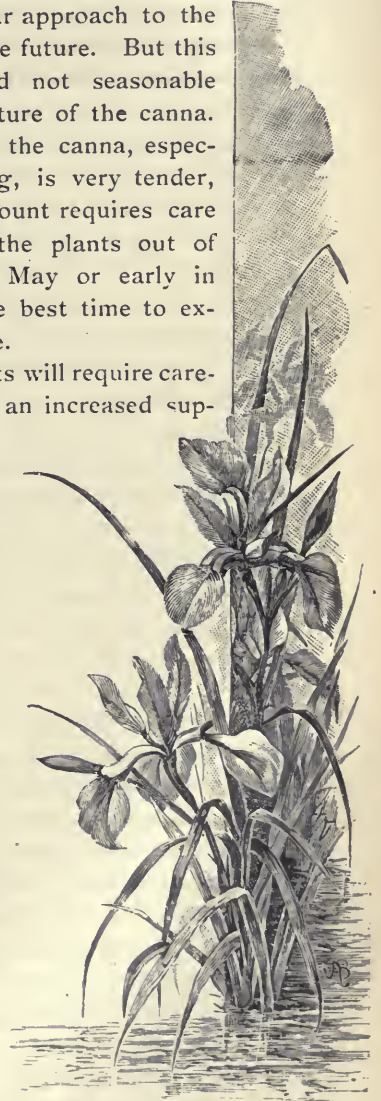


FIG. 2257. IRIS.

the early flowering perennials should be done as early as possible. The pretty little pink and white flowering phlox subulata, or moss phlox as it is sometimes called, should be divided and transplanted very early. A better time to do this, however, is early in September, so unless the growth has got very straggling this can be left over until early fall.

Both the herbaceous and tree pæonies should be transplanted early if done at all. Dielytras and clumps of German Iris should be divided early. All of the plants just mentioned will, however, grow and thrive and produce their flowers in abundance for three or four years, without being divided. After that period transplanting is beneficial, as larger flowers, higher colored and more luxuriant foliage can be obtained than by leaving them in dense matted clumps for too long a time.

Herbaceous spireas (*Spirea auruncus* and *S. filipendula fl. plena*) can also be transplanted early. About the first week in May will be early enough for most of the later flowering perennials. A good general rule to work on at this season of the year in regard to transplanting perennials is to divide and transplant them when the young growth is about an inch high. Exact dates for a week or so cannot be given as the best time for these operations, as situations and seasons vary so much, but about the end of April and early in May is about the right time in this section of Ontario.

Best Twelve Herbaceous Plants.—I am often asked what I consider are the best twelve varieties of herbaceous perennials. The following twelve species, many of which can be had in several varieties, will be found to be hardy, easy of culture, and will come into flower in succession from early spring until late autumn. This latter feature, viz., successive flowering period, I consider one of the main points to be thought of when planting a border, or even a few plants of herbaceous perennials. Hardiness, and an



FIG. 2288. PÆONY.

adaptability to grow readily in almost any soil, is another point that has been taken into consideration in making up this selection, as well as their suitability for cut flower purposes. They are given here in about the order that they will come into flower. I have also given the average height of the plants, a point lost sight of sometimes and one that causes dissatisfaction oftentimes later on.

1. *Iberis sempervirens*, 6 inches.
2. *Dielytra spectabilis*, 2 feet.
3. *Iris Germanica*, 18 inches (in variety.)
4. Herbaceous Paeony, 2 ft. (in variety.)
5. *Gaillardia grandiflora*, 18 inches.
6. *Campanula persicifolia alba*.
7. *Aquilegia*, 2 feet (in variety.)
8. *Hemerocallis flara*, 2 feet.
9. *Phlox paniculata*, 2 to 3 feet, (in variety.)
10. *Pyrethrum hybrida*, 18 inches.
11. *Achillea*, The Pearl, 2 feet.
12. *Rudbeckia lanceolata*, 5 feet.

This will be found to be a good list of twelve iron-clad border plants, many of



FIG. 2289. COREOPSIS.

which can be had in great variety, especially the iris, paeony, aquilegia and phlox. I would very much like to have added the delphinium, coreopsis, and one of the thalictrums and the beautiful little gypsophilla paniculata so useful for cut flowers, but I

could not see my way clear to omit any of the foregoing list. The thalictrums are most useful for cutting for bouquet green, but succeed best in a shaded position, such as on the north side of a fence or building.

Hardy Roses.—These should be pruned as early as possible, if not already done. Prune closely, leaving from 4 to 6 inches of last years growth below where the shoots are pruned off. Any planting of these, or of hardy shrubs or trees should be done at once. Fork over the rose beds after pruning the bushes. A little fertilizer, such as bone meal, very rotten stable manure, forked in around rose bushes or flowering shrubs will help them materially.

Annuals.—These can be sown outside now. A small frame made of boards and placed in a warm position with a few inches of good soil will be a good place to sow most annuals in. They are easier cared for in the early stages of growth treated in this way than if sown in the open border. Mignonette and nasturtium, and perhaps stocks are best sown in pots or in the place they are to grow in, as they do not transplant very easily.

Hamilton.

W. HUNT.

PLANT EXPOSURE.

All the windows of a house can be utilized for plant growing, provided we are careful in our selection and adapt the plants to the window it is to grow in.

If I were asked to give a list of plants adapted to the several exposures, the list would be something like this: For eastern windows—fuchsias, begonias, callas, Chinese primroses, primula obconica, azaleas, plumbago, stevias, lobelias, and all kinds of bulbous plants. For southern windows—geraniums, roses, chrysanthemums, carna-

tions, lantanas, oxalis, oleanders, abutilons, hibiscus, marguerites, and most of the plants having richly colored foliage. For western windows—bright leaved plants, and a few more 'accommodating' plants like the geranium, provided the effect of too strong sunshine is modified somewhat. For northern windows—ferns, araucarias, English ivies, palms, aspidistra, ficuses and seliganelas, Roman hyacinths, primula obconica and Chinese primroses will often bloom well in sunless windows.—*Amateur Florist.*

SOME ATTRACTIVE CACTI—III.

BY J. H. CALLANDER, WOODSTOCK.

FIG. 2290. *CEREUS PERUVIANUS MONSTROSUS*.

FROM the present appearances it would seem that Cacti are coming into more favor with the general flower-loving public. There is scarcely a floral magazine that is not running a series of articles on these wonderful plants, and this shows that the people are enquiring about the genus. There is a fascination in collecting anything that is hard to get, and every enthusiast tries to get something rarer than his neighbor has. This is the case with stamp and coin collectors, and it is the same with collectors of Cacti. There is this advantage that the

"Cactus Crank" has, his specimens are always rewarding him with splendid bloom, and yearly growing in value. The field also is unlimited in extent, the known varieties running into the thousands, and abundance of room open for hybridizing and grafting to produce new varieties and effects. As these facts become known the Cactus becomes more popular, and that seems to be what is happening now.

In this article only a few sorts will be touched on. From March onward the Cacti begin to send out their flower buds, and new growth after their winter's rest, and those fortunate enough to possess some good ones will be watching the process with expectant interest.

In the first photo is shown a good picture of the *Cereus Peruvianus monstrosus*, described in the December Horticulturist. This fine plant was grown in London for a number of years before it came into possession of the present owner, and is a valuable

FIG. 2291. *P. C. HOPPENSTEETI*.



FIG. 2292. MAM. NIVEA CRISTATA.

specimen. In a small photo is shown a specimen of *Pilocereus Hoppenstedli*, one of the Old Man style of Cacti. Some authorities class this family with the *Cereus*, but the characteristic hairy spines would seem to entitle them to their own distinctive name. They are found in mountainous parts of Mexico, and will stand long drought. A very porous soil, with a good deal of lime mixed in, seems to suit them well, and when making growth they enjoy

plenty of water poured over them. Indeed a good scrubbing with soap and water is not only good for them but gives them a better appearance.

The third engraving shows an extremely rare and fine specimen of the *Mamillaria* family. It is *M. nivea cristata*, a cristated form of a pretty species called *M. nivea*. This plant is the finest of the kind the writer has ever seen, and was lately sold to Dean Innes, of London, whose fine collection it now ornaments. It was exhibited at the Pan American with McDonell's exhibit from Mexico, where it was admired and coveted by many Cacti collectors. The natural form of the plant is round, like a coxcomb in shape, and must have taken from 50 to 75 years to reach its present proportions.

These plants are very rarely found, and bring high prices, one very large specimen at the Pan American being held at \$150. It was almost as large as a tub, but was not all cristate, most of it being the natural form of *M. nivea*, with three cristates in cluster. Dean Innes' plant, as a specimen of cristate form alone is much finer.

In our next Cacti talk we will try and show some good grafted Cacti.

Woodstock, Ont. J. H. CALLANDER.

HUMUS.

Soil well supplied with humus is in the best possible condition to generate these influences. Humus keeps the ground from becoming compact, makes it loose, allowing a free circulation of air. Then vegetable decomposition creates heat, and its spongy nature increases the capacity of soil for holding water. While plants need water and must have it, they will not thrive on too wet land. Good drainage adds very materially

to the fertile condition of the soil because it aids decomposition of elements of plant food. It stimulates a deeper root growth, and in doing so it increases the supply drawn from the subsoil. Drainage, manuring, rotation and tillage are practices essential to the supply and maintenance of soil fertility.—*W. S. Tompkins before N. B. Farmers' Institute.*



The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

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PERSONALS.

CONTRIBUTED BY THE SECRETARY, MR. G. C. CREELMAN.

MR. W. N. Hutt, of South End, attended orchard demonstration meetings at Collingwood, Creemore, Stayner and Thornbury during the third week of March. He reports great enthusiasm and much interest taken in the work. At each place an afternoon meeting was held in an orchard with a practical demonstration in pruning and grafting. Many farmers declared, after seeing Mr. Hutt demonstrate, that, had they known the principles of pruning themselves, it might have saved them thousands of dollars in their orchards. Such practical work as this by competent men should tend to do away with the transient

tree pruners who, as a rule, know as much about orchard management as a blacksmith does about watch making.

At the meeting of the Orillia Horticultural Society Mr. Hutt made a special plea for nature study in the schools. He appealed to the parents, saying that the children are always interested in anything pertaining to the field or forest and, if they had teachers competent to guide them, there is hardly any limit to the knowledge they would gain, knowledge of a nature that would be a benefit to them in after years. "As a rule," said Mr. Hutt, "children know more about nature in regard to the habits of birds and

insects than their parents do, as they are more observant of such things and more interested in them.

Lawn Making.—Mr. Hutt, at one of the horticultural meetings recently attended, gave the following instructions in reference to the making of a good lawn :—

“In the making of a lawn the point of fundamental importance to be observed is the preparation of the soil. The ground should be graded to a perfect level, but the subsoil not brought to the surface. The ground should be cultivated thoroughly until all weeds have been killed. The seed should be sown very thickly and evenly, and the ground well rolled afterwards. The best seed for a lawn is a mixture of equal parts by weight of Kentucky Blue grass, Red Top and Dutch clover. This should be sown at the rate of fifty pounds to the acre if a fine velvety lawn is required. He would not recommend the buying of ready mixed seed, as it generally contains the seeds of many obnoxious weeds. The lawn should be allowed to grow the first year, so that the roots may gain strength and headway, and in the second year it should be cut as often as possible.”

Mr. A. Gilchrist, of Toronto Junction, and **Mrs. E. M. Torrance**, of Chateauguy Basin, Que., were the delegates this year to the horticultural societies in the east.

Writing from Napanee, the secretary says: “This is probably the strongest and most efficient deputation that has yet visited Napanee. Many beautiful plants were shown at the meeting by the different members of the society. It is proposed that a plot in the town be secured and kept beautiful during the coming summer by the members of the society.”

Dr. C. J. S. Bethune, London, the veteran

entomologist, was persuaded this year to help with the lecture work in connection with the Horticultural societies, and of course he gave splendid satisfaction, and, as far as we have learned, every meeting attended by him was most successful. He was accompanied by **Mrs. A. Gilchrist**, of Toron Junction, who is a practical florist and was able to answer all questions in reference to the growing of herbs, trees and shrubs.

At Woodstock **Mrs. E. M. Torrance** is reported as having captivated the audience. She advocated the growing of shrubs and perennials on all lawns, as in that way only a succession of bloom can be secured at a reasonable expense. Annuals should be used only to fill up and to supply an occasional dash of color. She spoke strongly against planting in rows, or splitting up a stretch of lawn with flower beds. Grouping is far more effective, and it is following nature's plan, which is the aim of gardeners now who have an eye to the beautiful. Among the shrubs that **Mrs. Torrance** mentioned as growing well in this climate were syringas, lilacs of all varieties, magnolia stellata (a shrub little known here, but which is easily grown and blooms very early), spireas, roses, rosa rugosa (which comes in a variety of shades), japonicas and others. In selecting shrubs it would be well to have some in which flowers are succeeded by berries, as in that way bits of color would be insured for a long time, often far into the winter. She also gave a list of well known perennials, such as the bleeding heart (which, by the way, may be grown in the house), the perennial pea, rudbeckia, German iris, etc., which are free flowers and easily cultivated. These, as well as shrubs, should be grouped, not planted in rows.

QUESTION DRAWER.

Apple Aphis.

1278. SIR,—Enclosed please find cuttings from apple trees containing sample of insects on apple bark, also peach wood showing puncture of bark. Please give us information on these insects. The apple insect is a new discovery here. *a.* What injury does it do to the apple tree? *b.* What is the remedy, when applied? *c.* Formula for application? This information will be thankfully received. The appearance is like a flea, my glass shows it about as large. The indication of the bark would seem to be the eating into the cambium and following it round the limb. Your reply will very much favor, yours truly, W. C. WEBSTER.

The minute, oval shining objects seen by Mr. Webster in the scars on his apple and pear twigs are the eggs of the green apple aphid, or louse. The lice hatch from the eggs about the same time the foliage appears and suck the juices from the leaves, causing them to curl. Frequently the tender tips of the shoots are killed, and the young fruit is so checked in its growth that it never ripens. The lice multiply rapidly, and often much harm is done; but if a thorough spraying is made immediately after they hatch from the eggs, i. e., as the buds are opening, very beneficial results will be gained. The standard applications are: 1. Whale-oil soap (1 lb. to 2 gallons of hot water); 2. Kerosene emulsion (1 part emulsion, 12 parts water); 3. Tobacco solution (1 lb. to 6 gallons of water); 4. Tobacco and whale-oil soap solution. Paris green applications are of no value.

The punctures on the pear trees are made by the tree-cricket, which does so much damage to raspberry canes.

The little clusters of eggs on the specimens sent belong to the Fall canker-worm.

Some of the scars on the twigs may have been caused by the Buffalo tree-hopper

about which I wrote a few notes in last year's Canadian Horticulturist. The best treatment is to remove and burn all affected twigs during the pruning season, as the eggs will then be destroyed.

The Lime Washes.

1279. SIR,—I am somewhat puzzled about the best time for application of lime wash to trees, after comparing Mr. G. E. Fisher's statements in the February Horticulturist with what Professor Macoun has found so beneficial. Mr. Fisher, speaking of the lime and sulphur and salt preparation, advises that the first spraying be done in April, as late as possible before the opening of the buds; while Professor Macoun on page 57 of same number says—"The mixture (lime and salt) should be applied in the autumn or early winter." Now is there any material difference between the two spraying mixtures? Does the boiling with sulphur destroy the caustic properties of the lime? At the annual meeting our Association (P. E. I.) different members spoke of the successful application of lime wash in midwinter, as suggested by Professor Macoun, to retard blooming and destroy the oyster-shell bark louse. Has anyone used the spray of which Mr. Fisher speaks as a winter application? and why, if they are so nearly similar, does one doctor give his medicine in winter exclusively, while the other does his work in summer?

I value the Horticulturist very highly, and note steady improvement. I thank you for marking my copy "complimentary" last year though I had paid for it with my annual fee to our Provincial organization. We expect to accomplish something more than usual in our Association this year as we have efficient officers in Messrs. A. E. Burke and Dewar for President and Secretary. I fear that Diagram 2242 would not help Professor Hutt very much in his explanation of sap circulation; it was a puzzle to me until I noticed the roots were upwards.

Yours truly,

JEREMIAH S. CLARK,

Bay Views, P. E. I.,

Feb. 22.

These mixtures are totally different. Prof. Macoun's was simply to retard the bloom in spring and may be applied in winter, while Mr. Fisher's is a fungicide and insecticide

both, and one which is best applied just before the buds open.

We regret the oversight in the case of the illustration.

San Jose Scale.

1280. SIR,—I want you to send me formulas and directions for spraying peach trees for the Curl and for the Perniciosus Aspidiotus.

JONATHAN McCULLY, M. D.

Cedar Springs Ont.

1. Peach Leaf Curl has been, and is being treated, successfully by the use of Bordeaux Mixture. The spraying should be done early in the spring before the buds begin to swell, or from one to three weeks before blossoming. The success of the operation depends largely upon the time of application and the thoroughness with which the spraying is done. The twigs should be completely covered with a very fine mist, and this can be done only with a very fine nozzle. The tree must not be drenched. As soon as the mist droplets begin to run together, then is the time to stop spraying, and the trees have had enough.

2. Experience has shown that the San Jose Scale can be kept in check by careful applications of whale-oil soap, and Crude Petroleum. The soap can be used most effectively while the buds are swelling. The buds of tender trees are likely to be damaged if the application is made earlier. (For advice regarding the best brand, consult Mr. G. E. Fisher, San Jose Scale Inspector, Freeman Ont.) The soap should be used at the rate of two and one half pounds to a gallon of water, and one and one half gallons of the mixture are necessary for a full grown peach tree. It is preferable to prepare the mixture by adding the soap when the water is being heated over the fire, as the soap will come into solution much better. In the case of the crude petroleum, it is far safer to use the 20 to 25 per cent. diluted crude petrol-

eum. (Consult Mr. Fisher as to the best petroleum to use.) Our Ontario petroleum Mr. Fisher has found excellent. Peach trees, however, which have been weakened from any cause, are liable to injury from its application. Mr. Fisher thinks that 15% dilution is quite strong enough on peach trees. Of necessity, this dilution must be applied with a combination emulsion pump. The whale-oil soap is not likely to do as much injury as crude petroleum when applied by careless or unskilled sprayers.

O. A. C. Guelph. PROF. LOCHHEAD.

Best Fertilizer.

1281. SIR,—Will you please answer through the Canadian Horticulturist which is the best kind of fertilizers for loamy soil and how many years they will stay in the ground—some kinds will stay three years—and oblige

A SUBSCRIBER.

It is impossible to say which is the best fertilizer for a loamy or any other kind of soil. Artificial fertilizers can be intelligently and economically applied only when the nature of the soil and the peculiar feeding power of the crop that is to be grown upon it are known. For instance, if a soil is rich in available potash, and the crop to be grown is not in need of much of that plant food, it is evident that potash would be applied at a loss. It would, I think, be best to find out by experiments with small plots which fertilizer gives the best results on your land before going extensively into the use of them.

The cheapest nitrogen for farmers or orchardists is obtained from the growth of leguminous crops, such as clover, peas, hairy vetch, etc., and, under most circumstances, wood ashes furnish the cheapest potash and phosphoric acid.

Chemical Dept., Yours truly,

O. A. C., Guelph. R. HARCOURT.

OUR AFFILIATED SOCIETIES.



FIG. 2293. COLEUS BED IN MR. GOODMAN'S GARDEN AT CAYUGA. (Photo by Sweatman).

Cayuga.—The last mission of our society is to strengthen the individual hands of the local members in the improvement and adornment of their homes, so that public opinion will approve of them when they fearlessly say with "Elizabeth in her German Garden," "I love my garden!"

At the present time it is, in small places like Cayuga, considered effeminate to be fond of flowers. One is met with a remark of this kind; "Oh yes it is very pretty, but we have no call for this sort of thing." The farmers about us prosper and thrive, but the little villager nods away a local existence on a put-off plan and stunts and dwarfs the development of his intellectual vision with a self-possessed conceit that knows it all. Each year finds him in the same rut—a grocery politician fighting improvement, a makeshift regardless of all ordinary laws of sanitation, accustomed to fence a piece of the street when he likes, bound to throw his filth where he will, blind to duty, obstinate and dirty; full of a perversity in public matters that tends to poverty of soul and pocket.

The growing distaste for country life is not because of the farm. Our country is full of noble, intelligent farmers; it arises in protest against the little villager.

Imagine then the consternation at the temerity of our society advocating public gardens, and securing them, too, the first season. We read of, look at and enjoy the public gardens of Toronto, Hamilton, Quebec and Montreal, but in the country where it should be the easiest place of all to have these things it never heard of. It was con-

trary to nature—no, not contrary to nature, but contrary to the nature of the little villager.

The farmer is brought up to work; the little villager is the product of perfect idleness.

A local society has a great and noble work. If its members are faithful, it is possible to materially change and improve many small places. Our society has found much help in the success of the many individual gardens in this season just past.

A. K. GOODMAN.

The second open meeting of the Cayuga Horticultural Society was a pronounced success in all of its features.

For *recherche* occasions like this the Court Room if possible is secured, and there is no prettier and statelier room within the county for a public gathering of a semi-social character such as this was.

By a very simple arrangement the tables of the Court Circle, the Clerk's and Judge's desks made a perfect little tier platform with a background of shelving rising tier on tier for the display of a profusion of plants and flowers that was truly a dream of beauty and loveliness.

Begonias from 4 feet towering, gorgeous shrubs five feet high crowded with a very wealth of bloom down to the dainty two-branched little beauties carrying only a couple of balls of bloom. These flowers were the most in evidence and occupied the highest and most prominent place in the floral terrace. These were flanked on either side by splendid palms, tall, sweeping graceful ones of the grounded type, and a magnificent specimen of the nicotine plant.



FIG. 2294. ASTER HEDGE AT CAYUGA.

Just below this line on the next step was a magnificent miscellany of geraniums of all colors with great spikes of bloom. Petunias, sword palms, ferns, dianthus and coleus, the central portion being here occupied by a splendid easter lily. The base line was formed by a splendid array of primulas, Irish primroses and hyacinths. The effect of the whole was a spectacle not often seen. The most refined homes in the town were exploited for the material for the display and the contributors are to be congratulated on a result the memory and the impression of which will not soon be forgotten. The arrangement and the grouping and blending were dictated by an artistic sense that was given free scope.

No trouble was spared and a good deal of expense was gone to.

The finishing touches of this magnificent flower show were given by the addition of a coronal drapery of pink and white depending from the alcove of the portico behind the Judge's seat and surmounting the whole floral edifice, and the addition to the collection of flowers already described, of a gorgeous collection of a cineraria and cyclamen in full bloom and of every variety of shade. The piece de resistance was a small table gracefully draped, literally thronged with vases containing showy bouquets of carnations, tulips and narcissus. The apex of the drapery was crowned with a huge bunch of American Beauty roses.

The audience for the evening entertainment began to gather early and at 8.15 there was not a seat left in the building from the floor to ceiling. At this hour Mr. Goodman opened the entertainment with a neat speech stating the aims and purposes of the Society for the year 1902.

The Cayuga orchestra of seven pieces were present and added to their already well established reputation as a musical organization. The programme was carried out in its entirety except the numbers of Mrs. and Mr. Renshaw from York whom the impassable roads prevented from attending. Miss Matthews from Toronto was heard for the first time in Cayuga in two songs every note of which was appreciated. This young lady possesses a very sweet, true and expressive voice. There is sympathy in every tone and she added much to the enjoyment of the evening.

Mr. Farmer of the Bank of Commerce contributed two numbers, both of which were enthusiastically encored. This, too, was Mr. Farmer's first public appearance in the town, and Cayuga people are hoping it will not be the last. Mr. Farmer is not new to the concert stage, having won golden opinions from the best teachers in Toronto and elsewhere. His rendition of his two selections was indeed a treat to his audience.

Professor Macoun and Mr. Goodman supplied the addresses of the evening.

Walkerton.—The first public meeting of this society took place in the opera house on Thursday evening, March 13th. The Mayor of the town occupied the chair and the Walkerville orchestra provided delightful music. The speakers of the evening were Messrs. M. H. Race and L. Woolverton, of Grimsby. The former gave a most delightful and inspiring address on the influence of flowers upon the life and character, and the latter

took up the subject of landscape art as applied to home and school grounds. The interest was intense from first to last and the society hopes to stir up the town to attend some special work along the lines of special improvement.



FIG. 2295. THE HIGH SCHOOL AT CAYUGA.

Brampton.—On Friday, the 7th of March, Mr. A. Gilchrist, of Toronto, and Mrs. Torrance, of Chataquey Basin, P. Q., visited us, and at the same time the editor of our monthly journal, Mr. Woolverton. Visits were made in the afternoon to the high and public schools, and addresses given with a view of interesting the children in nature study. The evening attendance was small, because of negligence in advertising, and scarcely anyone seemed aware of the meeting. Mrs. Torrance talked about "Plants which were successfully grown in her garden"; Mr. L. Woolverton upon "Civic improvement as work for our horticultural societies"; and Mr. Gilchrist exhibited a chart showing how school grounds might be so improved as to afford spacious playground in the rear, and also a beautiful and artistic lawn in the front, with borders of trees, shrubs and flowers.

Toronto.—A Fine Flower Show. Quite a new plan of exhibitions has been adopted by the Toronto Horticultural Society. Instead of having one large annual exhibition, there will in future be one held each month in St. George Hall of flowers, either house or outdoor, then in season. The object is to induce the public in general and amateurs in particular to take greater interest in the cultivation of plants, and it is thought more can be accomplished by monthly displays than by one big exhibition during the year.

Napanee.—A very large and successful public meeting, under the auspices of the Napanee Horticultural Society, was held here on Tuesday evening, 4th inst. It was one of the most successful and pleasant meetings yet held by the society. The speakers of the evening were Mr. A. Gilchrist, of Toronto Junction, and Mrs. Torrance, of Chautauquay Basin, near Montreal. They are both first class speakers and practical horticulturists, and their services have been engaged by the Fruit Growers' Association, in connection with the Ontario department of agriculture. They were probably the strongest and most efficient deputation that has yet visited Napanee in any such capacity. The chair was occupied by Mr. W. S. Herrington, K. C., vice-president, who made one of the most complete and practical chairman's addresses the society has ever had the privilege of hearing. It is well worth publishing verbatim.

At the conclusion of the addresses a vote of thanks was moved by T. Symington and seconded by J. Pollard. Rockwell's Glee Club were present and added much to the pleasure of the meeting by rendering several musical selections in their very efficient manner. A question drawer, and the practical answers it drew out, was also a very valuable feature of the meeting.

Another thing that added to the pleasure of the meeting was the fine exhibition of plants by some of the well known members of the society. Mrs. Wilkinson, the efficient president, gave a display of some very fine specimens of hyacinths. Mr. John Wilson and John Pollard also displayed some beautiful plants of their own cultivation.

The society, under its present efficient management, is said to be now one of the best in the province. Some of its leading members have proposed procuring a small plot central in the town and beautifying it. Such a movement would add much to our town's attractions, and, we doubt not, that some of our leading citizens would cheerfully give

tangible encouragement to it. We have already heard it intimated that some would subscribe liberally for that purpose. Mr. Gilchrist, who has attended many similar meetings, publicly stated that he met here the most responsive audience he had anywhere met similar occasions.

Cobourg.—A meeting of the directors of the Horticultural Society was held on Monday afternoon March 3rd. It was resolved to offer cash prizes amounting to \$40 for excellence in flower gardening during the coming season, and Messrs Hayden and Denton and Mrs. Field were appointed a committee to arrange a prize list, and the conditions of competition. Mr. Hayden suggested that prizes be given for the best flower beds, window boxes, ferneries, earliest potatoes, etc., open to the town, and that there be special prizes awarded to the school children for sweet peas, bouquets, etc. The object of the Society is to encourage local improvement as much as possible. It was decided that the Spring distribution for 1902 shall consist of the following named plants; to which each paid-up member will be entitled, viz:—One of Kelway's new hardy hybrid Delphiniums, one of Kelway's hardy perennial Gaillardias, one of Kelway's choice autumn perennial Phloxes. (The foregoing plants have been imported by the Horticultural Society directly from the renowned Royal Horticultural Gardens, established by Kelway & Sons at Langport, Somerset, England). One hybrid perpetual Rose, one one clematis Jackmanni Superba, one box of Carnations.

Leamington.—The directors met on the 15th of February and decided to offer the members Hubbardston, Jonathan and Bismarck apple trees; Monarch and Climax plums; Engold, Dewey and Chairs peach; and Spiraea, Hydrangea, Wiegelia and Honeysuckle shrubs.

OUR BOOK TABLE.

REPORTS.

REPORT OF INSPECTOR OF SAN JOSE SCALE, 1901, by George E. Fisher, Freeman. This report is a most interesting and valuable one, and every fruit grower who has reason to fear the invasion of his orchard by the scale should at once write the Department of Agriculture, Toronto, for a copy.

BOOKS.

CYCLOPEDIA OF AMERICAN HORTICULTURE.—Comprising suggestions for cultivation of horticultural plants, description of the species of fruits, vegetables, flowers and ornamental plants sold in the United States and Canada, together with geographical and biographical sketches, by L. H. Bailey, of Cornell University, illustrated with over two thousand engravings, 1902. 4 volumes at \$5.00 a volume. Published by the MacMillan Co., 66 Fifth ave., New York City. A magnificent work and indispensable to the library of every progressive horticulturist. This fourth volume completes the work, which reflects great credit upon the editor and his co-laborers. No doubt it will be in world wide demand.

FUMIGATION METHODS, by W. S. Johnson. A practical treatise for farmers, fruit growers, nurserymen, gardeners, florists, millers, grain dealers, transportation companies, college and experiment station workers. Published by Orange Judd Co., 1902. Price. \$1.

CATALOGUES.

CARNATIONS, Wholesale List, 1902. Also plant novelties and general floral stock. J. Gammage & Sons, London, Ont. **STRAWBERRY PLANTS**. T. C. Robinson, Owen Sound, Ont. Spring, 1902. **F. R. PIERSON COMPANY**, importers, growers and dealers in choice seeds, bulbs and plants, Tarrytown on Hudson, N. Y., 1902. **J. H. GREGORY & SON**, Marblehead, Mass, 1902. Catalogue of vegetable and flower seeds. A fine illustrated descriptive catalogue free to all. **MAULE'S SILVER ANNIVERSARY SEED CATALOGUE**, 1902, Philadelphia, Pa. **FRUIT AND ORNAMENTAL TREES**, Central Nurseries, A. G. Hull & Son, St. Catharines. **CHOICE STRAWBERRY PLANTS**, Chas. H. Snow, Cummings Bridge, Ontario. **GRAPE VINES AND GENERAL NURSERY STOCK**, Lewis Roesch, Fredonia, N. Y., 1902.



FIG. 2256. GRAVENSTEIN.

Photo by Miss Brodie.

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* * MAY * *

THE GRAVENSTEIN.

OF all the general purpose apples ripening in October, we know of none that can at all compare with the Grävenstein, an apple which is too little grown in the province of Ontario.

In the Annapolis valley of Nova Scotia this apple has been grown quite extensively for export, but delays in transportation to the seaboard and ill-ventilated steamship accommodation have resulted in considerable loss in the cargoes exported. This has led many of the Nova Scotia orchardists to cease planting this variety, and to prefer varieties which will endure more abuse in transit, as for example Ben Davis, Baldwin and Stark.

At a recent Fruit Institute meeting in Colborne, Mr. G. H. Vroom, of Middleton, N.S., was present, having been sent to attend our meetings by the Federal Government. Being asked if the Gravenstein was the most important commercial apple of Nova Scotia, he said: "No, that is not our most important commercial variety to-day, even in point of numbers of trees, and while other varieties are increasing in numbers, no

new Gravensteins are being set out. The reason is that the Gravenstein is an early apple, and we want a keeper."

Now, our experience is in favor of planting this apple to a limited extent in the commercial orchards of Ontario, especially in sections where there is good connection with the export steamers, so that too much delay need not occur in transportation. Cold storage accommodation too is becoming year by year more nearly perfect, and will afford a sure means of safe carriage for such varieties as the Duchess; Alexander and Gravenstein.

Those who plant large orchards find great waste from dropping when all the varieties are winter fruit, and are all ready for harvesting at one time; whereas by having a succession of varieties, e.g.—the Duchess in August, the Alexander in the early part of September, the Gravenstein about the middle, the Blenheim about the end, and the winter varieties to work upon during October and November, the work of an apple grower is more evenly distributed throughout the

season. Besides this he can keep up continuous shipments, which is often an important condition of success.

At Maplehurst we usually make up a carload of Astracan and Duchess in August for export in cold storage, and forward our Gravensteins about the middle of September, just as soon as they color, and just before beginning on our King apples.

Our Gravensteins have equalled any variety for profit, bringing the top price in the British market about the first of October.

The following is our description of this apple, as written for Fruits of Ontario :

Origin.—According to Hogg, the original tree grew in the garden of the Duke of Augustenburg, at the Castle of Grafenstein in Schleswig-Holstein in Germany, and was still standing about the year 1850. Leroy inclines to accept a statement by Hirschfeld, a German pomologist, who in 1788 wrote the first description of the apple, and stated that it was brought to Germany from Italy. The earliest trace of the apple we can find dates back to about 1760. It is now widely grown in Western Europe, and is a favorite everywhere.

Tree.—Much more vigorous in growth than ordinary varieties, and when in bloom remarkably beautiful with its extraordinary sized pure white blossoms ; hardy and productive.

Fruit.—Large to very large, the sample photographed was 3 inches long by $3\frac{3}{4}$ broad ; form oblate conical, somewhat one-sided and more or less pentagonal ; skin, greenish yellow to orange, beautifully striped and splashed with two shades of red ; stem, stout $\frac{1}{2}$ inch in length, set in a deep narrow cavity ; calyx partially closed, wide long segments, set in a wide irregular, slightly russet basin.

Flesh.—White ; texture, crisp and very juicy ; flavor, rich, vinous and aromatic.

Season.—September to October.

Quality.—Dessert, very good ; cooking, first rate.

Value.—Home market, first-class ; foreign market, first-class.

Adaption.—General in the apple sections, especially on the borders of the great lakes.

In order to study this question of adaption more closely we have made enquiries of some of our leading fruit growers in various sections and have received the following replies :—

“For real quality there is nothing in all our list of fall apples that will surpass the Gravenstein. But it does not seem suited to all the varied conditions that we have even in this province. In its favorite conditions the tree is a strong, vigorous and upright grower and a good bearer of well developed and handsome fruit. But it does not find these conditions in our inland counties. It seems to require a somewhat humid atmosphere for its proper development, and while it does well along the shore of Lake Huron and on the Georgian Bay it produces too many gnarled and unshapely specimens to be considered a success in this or in any of our inland districts. I have watched it closely for eight years at the Western Fair, London, and the best specimens have invariably come from some of the districts bordering on our great lakes. It will never be a profitable apple for the inland farmer of Western Ontario, though I would not be without one tree of it.” T. H. Race, Mitchell, Perth County, Ont.

“Gravenstein is in my judgment the best apple we have for fall use. High in flavor, large, fine color, tree a strong grower and very good bearer. Only for its liability to spotting with fungus it is as near perfection for its season as any we can hope for. With attention in cultivation and manuring and regular spraying in proper times this apple can be produced profitably for home use and foreign markets.” Alex. McD. Allan, Goderich.

“Gravenstein is very little known in this locality, but I have seen very fine specimens at Collingwood, though it is not grown there only to a very limited extent. If there was a good market for it I have no doubt it would be grown and would succeed well in the Georgian Bay District.” G. C. Caston, Craighurst.

“I have three trees of Gravenstein apples that have borne heavy crops of very fine fruit each alternate year, and always bring the best price in the market. I consider it one of the best varieties of September

apples for all purposes. The tree is a medium grower here and fairly healthy." W. H. Dempsey, Trenton.

"The Gravenstein has not been largely planted in this district, but what have been planted have succeeded quite satisfactorily. The tree is a vigorous, spreading grower, especially while young. I do not know of any Gravenstein trees that have been blighted or frozen or been scalded by the sun,

although some here have been planted 30 years. The trees are good average bearers of very handsome fruit of excellent quality, but like many other varieties of fine apples, they are only fall or late fall apples, ripening generally before Christmas. Taken fully matured it is very delicious. For home market, or the North-West, it should prove profitable." R. L. Huggard, Whitby.

ON THE PREPARATION OF LIME, SULPHUR AND SALT SPRAY.

BY FRANK T. SHUTT, CHEMIST, DOMINION EXPERIMENTAL FARMS, OTTAWA.



HIS mixture has recently received considerable attention in the horticultural press and several formulae, with varying methods of preparation, have appeared. This has given rise to enquiries as to the best mode to adopt in making the spray. To answer these the more satisfactorily, we have within the past few weeks made a series of experiments using the quantities and methods of procedure advocated by the more important authorities, and as a result have obtained information on one or two points that may be of interest to orchardists.

1. **Proportions.**—Since the insecticidal and fungicidal properties of the spray appear to be due to sulphide of lime and not to free (uncombined) sulphur or lime, it is desirable on the grounds of economy and efficiency that the proportion of sulphur to lime should be such that after boiling there may be little or no free sulphur in the mixture. We find to ensure this that the quantity of lime should at least equal that of the sulphur. An excess of lime apparently does no harm; indeed, according to some authorities, it is necessary in order to give the spray the correct consistency, but too large an excess is certainly to be avoided as it will be apt to cause clogging of the nozzle. We have found the following proportion satisfactory:

Lime 25 lbs.

Sulphur.....20 lbs.

Water.....60 gallons.

We also tried a formula with a large excess of lime and obtained a good result:

Lime.....35 lbs.

Sulphur.....15 lbs.

Water.....50 gallons.

2. **The Lime.**—The lime should be thoroughly slaked to avoid subsequent clogging of the nozzle. If part of the lime is added after the spraying mixture is made as directed in some recipes, the proportion of lime to sulphur in the mixture as boiled should not be less than that indicated in the first formula given above.

3. **The Boiling.**—It is essential that the boiling should be continued a sufficient length of time to allow all the sulphur to enter into combination. This, if accompanied by constant stirring, will be usually between 2 and 3 hours.

4. **The Salt.**—The addition of salt (usually at the rate of 15 lbs. to each of the foregoing formula) is recommended by all writers. This may be from its alleged action in increasing the adhesive qualities of the spray. It does not seem to affect its properties otherwise.

5. **Apply Hot.**—On cooling certain of the lime sulphides formed crystalize out. It is, therefore important, we consider, to make the application while the mixture is still hot.

NOTES AND COMMENTS.

APPLE SCAB.

PLATE III

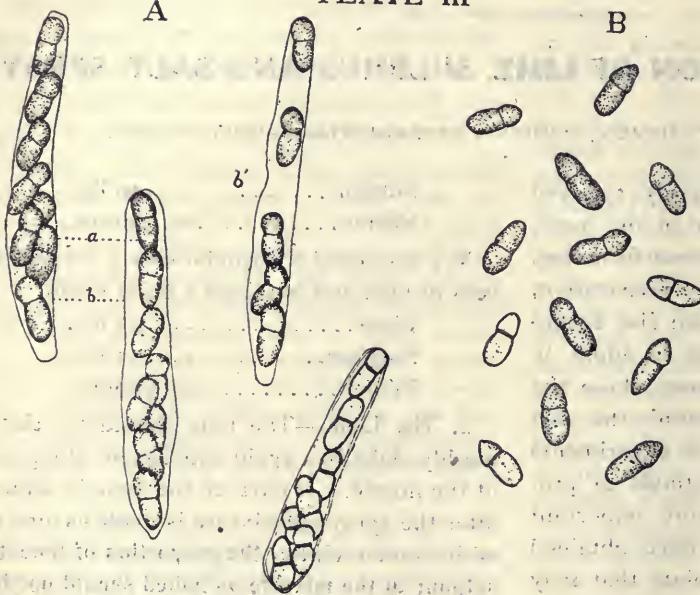


FIG. 2297.

A. Spores (a) in asci, (b) in ruptured ascus. B. Loose spores of scab.

Apple Scab (*Fusicladium dentriticum*) is one of the most serious hindrances of successful apple growing. By the fruit marks act, fruit so affected is virtually ruled out of the market as No. 1 grade, and in many orchards this will make seconds of nearly one half the crop. This fungus has been steadily increasing upon us, during the last twenty years, and we must now face it with faithful spraying or go out of apple growing. Green, of Ohio, made experiments in 1897 showing an average of nearly seven bushels of apples per treated tree and only two and one half per untreated; and in the case of Spy and Baldwins the actual average of

profit derived from the treatment was more than \$5.00 per tree!

The first application of the Bordeaux should be made soon after the leaves begin to unfold; the second when the petals fall; and, if weather is wet, a third should follow about two weeks later.

Clinton, of Illinois, found the scab was preserved over winter in the fallen leaves of the affected trees, and this stage of the life history of the scab is known by the name of *Venturia*. Fallen leaves gathered in October from scab infested trees, show, on the under side, small black round pustules, sometimes congregated in greyish spots, which mark the place of the winter scab colony. These pustules are called perithecia, which is the latin plural of perithecium. Figure 2298 C. shows one of these which has been placed fifteen hours in apple broth and the threads are the mycelial growth from the spores enclosed, which penetrate among the cells of the leaf tissue.

Figure 2298 D. shows some of these spores separated, (a) spore not yet swollen, (b) a germinating spore.

Figure 2298 E. shows germination of spores within 24 hours after placing them in water, (a) being a spore and (b) a germ thread.

Figure 2297 A. shows spores (a) asci, (b)

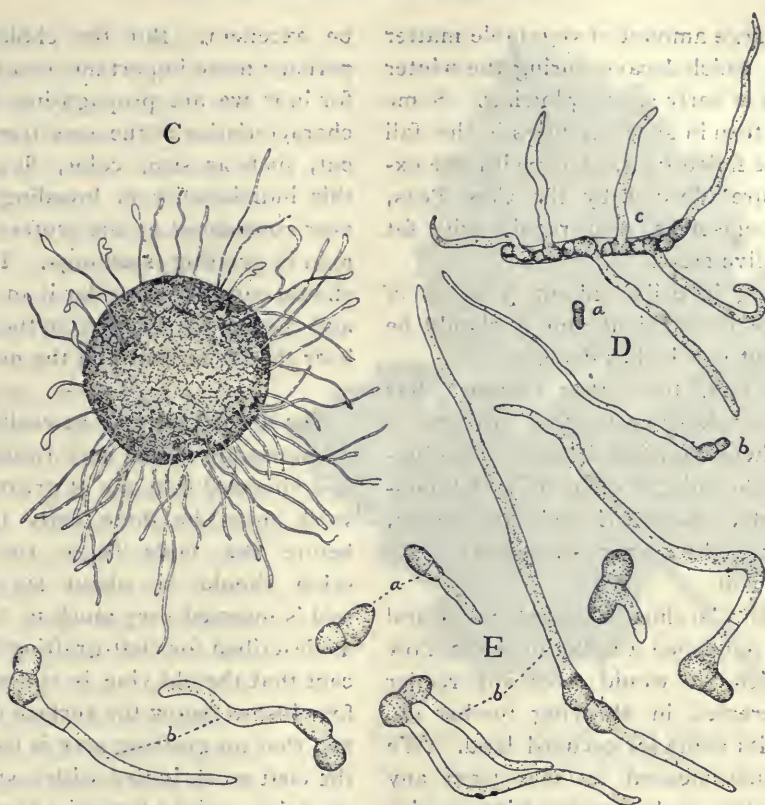


FIG. 2298.

C. Perithecium of apple scab with germinating spores.
D. (a) Spore not swollen;
(b) Swollen germinating spore.

E. Germination of spores, after 15 hours in apple leaf broth.
(a) spore, (b) a germ thread.

partially escaped from a ruptured ascus, and (b) loose spores.

When we consider how highly these drawings are magnified and that these spores are microscopic in size and float like particles of dust in the air, it is easy to understand the rapidity with which scab will spread throughout an orchard, especially in moist weather, for moisture is necessary to the growth of the penetrative threads of the spores.

So far, a coating of Bordeaux has been found the only safe-guard against these scab spores, fastening themselves on the leaves and fruit, but this is an expensive as well as a disagreeable operation, and we are encouraged to hope that a coating of the lime, salt and sulphur spray may be equally effec-

tive, and certainly much less expensive, because one application may suffice.

The Cow Pea.—Formerly it was said that "this pea is to the South what red clover is to the North, and alfalfa to the West," but of late it has been found that the Cow Pea is of great value in all of these sections, and, during the last year or two, it has been sown in some parts of Ontario for the improvement of orchard land. It is sown in spring about the same time with beans, in drills about $2\frac{1}{2}$ or 3 feet apart, and constantly cultivated until August 1st, when the peas will occupy the ground, though in some cases Crimson Clover is sown among the Cow Peas at the last cultivation. In

this way a large amount of vegetable matter is provided, which decays during the winter and permits of early spring plowing. Some orchardists turn in sheep or hogs in the fall to eat up the fallen fruit, along with the excellent pasture afforded by the Cow Peas, and find themselves well repaid with fat marketable live stock.

For sowing in drills, about 3 pecks of seed per acre is sufficient and it should be covered about two inches deep.

The Cow Pea, like other legumes, has the faculty of taking up the free nitrogen of the atmosphere; holding it fast and mingling it with the soil; so that only the mineral elements, phosphoric acid or potash, need to be added to make a complete fertilizer for the soil.

The North Carolina State Horticultural Society has published a bulletin on the Cow Pea, to which we would refer any reader who is interested in studying further the question of its value for orchard land. We shall be much pleased to hear from any reader who has had any experience with this pea.

Where Doctors Disagree.—At the Fruit Growers' Institute, at Colborne, Mr. Coyle seemed to have some curious notions about grafted fruit. He said: "I have during twenty years' experience in the fruit trade, noticed this, that fruit from *grafted stock* will not carry such a long distance, will not stand as long in storage, will not give as good color, as that grown on the original stock."

Surely Mr. Coyle forgets that he has no apples in his orchard of the varieties he names, which were not *grafted*, either upon young seedlings by the nurseryman, or top grafted on old trees in the orchard.

No doubt the question of the best variety to use as stock is still an open one and worthy of most careful study; and if it were possible for nurserymen to use Tallman Sweet Seedlings no doubt the results would

be excellent. But the choice of scion is perhaps more important than that of stock, for in it we are propagating the individual characteristics of the tree from which it is cut, such as size, color, flavor, etc.; and this individuality in breeding is seldom if ever considered by the professional nurseryman in grafting seedlings. The orchardist should carefully consider it in top grafting, and choose his scions from those trees which bear the finest fruit and the most of it.

The Grape Vine may be easily grafted, and a knowledge of this may transform a profitless vineyard into one of great value. This work must be done early in the season before the buds begin to swell. The scion should be about six inches long, and is inserted very much in the same way as described for cleft-grafting the apple, except that the old vine is cut some three or four inches below the surface of the ground, and that no grafting wax is used. Instead, the cleft stock is tied with a string, and the earth is carefully heaped about the scion so as to leave but one bud above the surface.

In case the old vine is too knotty for cleft-grafting, the work may be accomplished by splice-grafting a smaller branch. This is done at a distance of two or three feet from the stump, and the grafted branch is then laid down and fastened in place with a peg. The earth is pressed about the scion, leaving a bud above the surface, which is the only one that should be allowed to grow.

Currant Anthracnose.—The loss of foliage by our currant bushes, early in the season, is becoming a serious hindrance to the successful cultivation of this fruit. For a long time we thought ourselves helpless to control this evil, but it is now shown that it may be largely prevented by spraying with poisoned Bordeaux mixture.

There are two distinct fungi to which this loss of currant foliage is due, viz.:—*leaf*

spot (*Septoria ribis*) which produces dead brown spots about one-eighth inch in diameter (Fig. 2300), and anthracnose (*Gleosporium ribis*) which produces spots only about the size of a pin head (Fig. 2299). The former is the common leaf spot disease, but occasionally, as 1901, we have serious attacks of anthracnose.

Hepworth, a fruit grower on the Hudson, estimates his loss on 18 acres of currants in 1901 as 24,000 quarts, due to anthracnose and subsequent sunscald, there being little foliage left after July 22nd to protect the fruit. Sprayed bushes at Geneva, on the other hand, held nearly full foliage until the middle of October. Fay and Victoria seem peculiarly liable to the disease, while Prince Albert and President Wilder are almost immune.

As a remedy we advise the use of poisoned Bordeaux instead of hellebore, thus destroying both worms and fungi with the same application. For thorough work one should give the first



FIG. 2300. A LEAF OF RED CURRANT AFFECTED WITH LEAF SPOT.

spraying before the leaves appear, and the second treatment when they unfold.

The Bordeaux is made after the usual formula, 4 lbs. lime, 4 lbs. of copper sulphate and 40 gallons of water; for the worms we add 3 oz. of Paris green to the 40 gallons of mixture.



FIG. 2299. A LEAF OF RED CURRANT AFFECTED WITH ANTHRACNOSE.

The San Jose Scale Act was amended at the last session by adding the following subsections,—

(1) All persons owning, leasing or managing any orchard or collection of plants, other than a nursery, shall, when any plant therein becomes infested with the scale, and forthwith on becoming aware, whether by notice or otherwise, of such infestation, destroy such plant by fire, or shall effectually treat the scale by fumigation, or by spraying with crude petroleum, kerosene or soap, or by any other material prescribed by the Minister.

(2) The council of any city, town, township or incorporated village may, and upon

the petition of fifteen or more ratepayers shall, by by-law, appoint at least one inspector to enforce the provisions of this Act in the municipality, and fix the amount of remuneration, fees or charges he shall receive for the performance of his duties. All such appointments, as well as such remuneration, fees or charges shall be subject to, and be only operative on the written approval of the Minister, communicated by him to the clerk of the municipality.

(3) Every inspector appointed by any by-law passed under subsection 2 of this section is empowered to act as inspector under the **Yellows and Black Knot Act** and under the **Noxious Insects Act** in all respects as if he had been appointed an inspector under the last mentioned Acts by by-laws specially passed for that purpose.

(4) All such inspectors appointed shall be subject to and observe the regulations and directions of the Minister, and shall be subject and subordinate to the inspector appointed by the Minister, and in case of any neglect of duty, such inspector shall be subject to the penalties prescribed by this Act.

(5) The council of the city, town, township or incorporated village shall pay the remuneration, fees or charges of such inspectors, and shall be entitled to receive from the Department of Agriculture one-half of the amount so paid upon furnishing the department with statements of the sums so paid, certified to by the Inspector appointed by the Minister.

Inspectors are to be appointed in Saltfleet, Grimsby, St. Catharines and Grantham. At each of these places, after the Fruit Institute, a petition was got up and signed by fifteen fruit growers who were rate payers, petitioning the Municipal Council for the appointment of an inspector, who should enforce the provisions of the Act, and thus save the section from devastation by scale.

A **Cold Storage Steamer** has been promised the Prince Edward Island Association for carrying their fruits to the old country markets; also the Federal Government has promised to send an instructor in fruit culture, who will visit the whole province, and give advice and information on the most ap-

proved methods. The president, the Rev. Father Burke, writes a most encouraging letter, and hopes that the provincial organisations may work together so heartily as to attain the two important objects just now in view, viz., (1) the appointment of a Railway Commission, to whom we may appeal for justice in the freight rates for fruit; and (2) a more perfect system of transportation of tender fruits, both on land and sea.

The **Fruit Marks Act**, though not yet perfect, is on the whole working out the interests of the fruit grower. There is little encouragement for one man out of ten to put up his apples honestly, when the other nine face their packages and hide rubbish in the middle of them. The work of the inspectors is bringing every man into a uniform method, and will soon establish confidence in Canadian apples as the best packed and the best graded of those from any country, because Canada is the first to adopt such an Act. This will gradually cause the value of our apples to advance in the foreign markets, and all our apple growers will share in the benefit.

It was a good provision that all closed packages of apples should be marked with the correct name of the variety, for this will obviate one of the evils, which unfortunately prevails in the large markets, of re-marking packages of fruit with the name of some popular variety. Many varieties of yellow-fleshed peaches are sold as Crawfords; and many kinds of red apples are sold as Spys because they are known and wanted in the markets. In New York city, for example, the Western Ben Davis is often sold for New York state Northern Spy; and the Missouri Pippin for Vermont Spitzenburg. This, of course, is a fraud upon the buyer and tends to discredit the value of those excellent varieties, and in the end to bring general loss upon apple growers as well as disappointment upon the purchasers.

Grafting.—There are very many apple and pear orchards throughout Ontario which are unprofitable on account of the varieties planted. Many kinds also, once profitable, are so no longer on account of the apple scab, as, for instance, the Fameuse, the Early Harvest, and the Fall Pippin.

Now any man, who has a little skill in the use of tools, can easily transform such trees to kinds that are valuable by grafting; an art by many looked upon as difficult, and invested with many secrets.

The first thing to do is to secure scions of the kinds wanted; for these must be cut while the buds are yet dormant, and be laid away packed in earth, or in fresh sawdust, until needed. If near a good city market it will pay to grow a few such fancy apples as Red Astrachan, Duchess and Wealthy, and scions may be secured at a very small cost from almost any of the nurserymen who advertise in our columns.

Apples and pears may be grafted much later in the season than stone fruits, for while the latter may be done as early as possible in the Spring, the former need not be done until the last of May, or even the early part of June.

Cleft Grafting is the usual method, and for the smaller limbs it is the best. For this the tools required are a sharp saw for cutting off the limbs where the graft is to be inserted, a sharp knife to sharpen the scion, a



FIG. 2302.

FIG. 2303.

grafting chisel, such as is shown in Fig. 2301, to open the cleft where it is to be inserted, a mallet to drive the chisel, and a small kettle, with a lamp so fixed in it as to warm the water in which the wax is placed till needed.

Our illustrations will represent the process of grafting. The scion, Fig. 2302, is bevelled equally on both sides, with the outer edge it anything a trifle thicker than the outer to ensure firm contact between the cambium layer of the scion and the stock. It is an advantage to have a bud on this edge as shown; if the stock is small one scion may do, as in the engraving; but if large it is better to have one on each side, and thus if one fails the other may succeed.

The stock should be smoothly cut across with the saw, and then split with the grafting chisel, the narrow projection on the back of which is used to open the cleft for the insertion of the graft. All the cuts are then covered with grafting wax and the work is complete.

Grafting Wax may be made in a variety of ways, but in all the ingredients are resin,

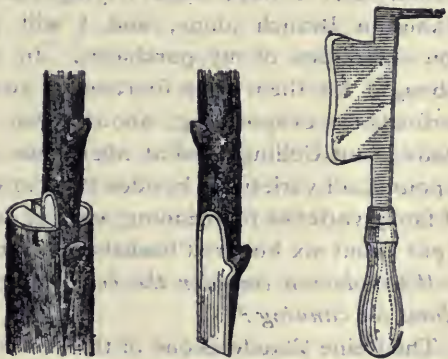


FIG. 2301.



FIG. 2304: MR. MORRIS' APPLE GRAFT AS SHOWN AT COBOURG.

tallow or linseed oil and beeswax, and it is more or less expensive according to the proportion of beeswax used. A very good recipe is one pint of linseed oil, one pound of beeswax and four pounds of resin. The resin and the beeswax should first be melted together, and the tallow or oil be added, when the whole should be well stirred up together. The mixture is then poured into cold water, and when cooled worked by hand until ready for use.

Stringfellow Grape Planting.—True to his principles, Mr. Stringfellow advises that vines be reduced practically to cuttings just before planting; first pruning the tops down to almost one foot, then cutting away all

side roots entirely, and those at the base to about a quarter of an inch. He would plant with a dibble, watering if the soil is very dry, and pressing the soil firmly with the foot.

Cheap Grades of Fruit should never be shipped; they should be sold at home for cider, canning or evaporating. It is all very well to say that the fruit grower should never grow second grade stuff. Theoretically he should not, and this is the aim of the best growers, but practically there must be second-class fruit when you practice sorting and grading: some samples will be curculio stung, some mis-shapen or otherwise blemished and cannot go in for No. 1 grade.

It would be the ideal thing if every farmer could have an evaporator on his own ground, but he cannot. It would not pay him to neglect his more important duties to try to work a business with which he is unacquainted. He had better sell all such stock to a well organized company, who understand the business and can afford to pay him a fair price. We have a number of such companies in Ontario and Mr. George Rilett, who has been buying largely for one of these fruit packing companies, surprised us the other day with some figures:

The Simcoe Packing Company, he said, has branches at Simcoe, Hamilton and St. Catharines. I have been buying for the Hamilton Branch alone, and I will give you some idea of my purchases. In 1901 I bought for them from fourteen to twenty carloads for evaporating, about seven carloads about Collingwood at about one cent a pound, all varieties; besides two carloads of fancy varieties for canning and for jams. I put about six hundred bushels in a car.

What do you consider the best variety of plums for canning?

The Reine Claude is one of the best for all purposes. In 1899 when there was a heavy

plum crop, I bought two carloads of this variety at Winona, and paid from 30 to 35 cents a twelve quart basket for them.

Do you buy cider apples?

"Yes, indeed I do; but not for the Simcoe factory. I buy them for S. Allen, of Norwich, who makes a special business of cider making. This man started business as a poor boy. He got a small cider press and set it up in his woodshed, and kept at the business till he mastered it, and now he has the best outfit in the country and has made a fortune out of the business. He is known the country over, and sends his travelers as far west as Winnipeg to sell his cider."

Does he get apples enough in Norwich?

"Oh no, he buys everywhere. Some years he almost sweeps the country for cider apples. In 1901 I bought about fifty carloads for him at 20 cents a bushel. Of course that was exceptionally high, but he always pays a fair price. Some years I buy one hundred carloads for him, and I get most of them in the northern sections, along the east coast of Lake Huron and south of the Georgian Bay, especially about Collingwood and Owen Sound."

A Visit to the Hamilton Factory.—Calling at the works of the Hamilton branch of the Simcoe Canning Co., one day in April, we were courteously received by Mr. Moffat, the manager, who was pleased to give any information of value to fruit growers. "I would be sorry, however," he said, "to have you fruit growers run away with the idea that this business could be successfully run by a company of farmers. It is a special business and needs experts to manage it or it would result in financial failure. We do a large business; in 1899 we put up 40,000 bushels of tomatoes, and paid about 25 cents a bushel for them."

Please give me some idea of the prices you pay for fruits.

"Well, we buy in twelve quart baskets, and for red currants we pay 25 to 30 cents, sometimes 35 cents; black currants 70 cents;

red cherries 75 and 85 cents; ox heart cherries \$1.00; gooseberries 60 cents; Keiffer pears 25 to 30 cents."

Do you like Keiffer as well as any for canning?

"Yes, it is as good as any for this purpose. We let them stand until they yellow up a bit, and we can take our time in handling them. We add a little sugar and they can splendidly."

We use Bartlett and Flemish Beauty also, but do not care for any pears less in size than two inches in diameter."

Plums for Profit.—Mr. Vance Cline, of Winona, is one of our principal plum growers; he has a very large commercial orchard near Winona, a part of which has been in full bearing for many years and a part is just beginning to be profitable. We took the occasion of his recent call at our office to ask him which plum he found most satisfactory for the profit. "The Bradshaw," he said, "it is excellent in quality, early, productive and carries fairly well."

How about Washington?

"Well, it is a plum to eat, but it does not carry. I have a good lot of trees, but I am digging them out on that account. No matter how careful you are in packing them they will open up spotted when they reach the market. Once I tried wrapping each plum separately, and shipping them in fancy packages, but they opened out spotted just the same, and do not sell well."

Do you like General Hand?

"Well enough, if I can get it, but the trouble is I cannot get the fruit. It does not bear well, and hence is unprofitable."

Is Pond's Seedling profitable?

"No, it is beautiful in appearance, but like the Keiffer pear it has no quality, and nobody wants a second basket."

Quackenbos is all right and so is Reine Claude. Both of these are profitable varieties. I think the French prune too would

be profitable ; it is such a good shipper and evaporates so easily."

Why don't you top graft your General Hand and Washington to some other variety ?

"Well, they don't do well in my experience. I have a lot of Lombard trees which I top grafted to Reine Claude and Bradshaw, but after a few years the grafts died off, and we have still an orchard of Lombards. I think I will dig those trees out and plant the orchard all over again."

What is your prospect for this season ?

"Oh, too good, I am afraid, for the price. I expect there will be a heavy crop all through the plum sections. Still, even at the low prices of the past two years, they pay very well ; and perhaps the Canadian Northwest will soon open up excellent plum markets for us."

The Transportation of fruit at reasonable rates is a burning topic with fruit growers and fruit shippers everywhere. The time was when this business of fruit growing was too insignificant to command either special cars or special rates, and it is no wonder the rates were exorbitant. But now all is changed, and the fruit products are becoming more important in Southern Ontario than the grain products. Why then should not as reasonable rates be made for the carriage of fruit as for grain ?

At our meeting at Cobourg, a report was brought in by Mr. W. H. Bunting, chairman of the Transportation Committee, which was very much to the point, and although the report was superseded by a resolution looking toward the appointment of a railway commission, the report of the committee should not be lost sight of as expressing some of the points of grievance which we fruit growers have against the carrying companies. The following is the resolution :—

Local and Provincial Distribution.—Resolved—1. That a revised schedule of reductions in rates and improvements in service be laid before the railway officials for their consideration, with a

strong request for their acceptance, in order that at least to some extent justice may be done to the fruit industry.

2. That, inasmuch as improved systems of refrigeration and ventilation, in connection with the carriage of fruits, have been favorably reported on from the tests already made, and since the car service in this respect has not been satisfactory in the past, the railway company be requested to arrange for a more extensive equipment in this respect on some plan that may show reasonable prospect of success.

3. That matters of local grievances or hardships in connection with the transportation of fruits be promptly reported to the secretary of this association, with full details, in order that complete information on this point may be obtained and efforts put forth to relieve the same if possible.

4. That some comprehensive plan be adopted whereby the local conditions of over supply or scarcity of fruit in any particular district may be promptly made known, so that a more even and satisfactory distribution of the more perishable fruits may be obtained.

Export Trade.—Your committee note with satisfaction that improvements in the service are being made by the steamship companies, and, while they regret to learn that the financial results from export shipments have not yet been of such a nature as to inspire confidence in the shipper, they trust that the time may not be far distant when it will be possible to land our apples and pears in the English market in uniformly good order and with a reasonable assurance of a safe and careful handling throughout the entire journey. To this end it is hoped that the Dominion and Provincial Governments will continue to supplement the valuable assistance already rendered in this respect, which has been productive of good results.

We solicit the co-operation of local and provincial Fruit Growers Associations in securing for fruit growers fair play in the matter of freight rates on fruits, so that we may be agreed upon details when we again seek for a better classification of freights on fruits.

Civic Improvement is certainly one of the most important fields of work for our local Horticultural Societies, and the noble example of the Cayuga Society might well be followed by every other such society in Ontario. The plan of work laid out by the American League of Civic Improvement includes the following suggestive sections,—public recreation, a gymnasium, play grounds, etc ; parks ; municipal art ; village improvement ; rural improvement, including good roads, country schools, etc. ; sanitation ; libraries and museums ; social settlements ; public nuisances, as smoke, advertising, etc. ; preservation of nature ; arts and crafts, etc.

The openings for such philanthropic work are many and great, the fire of public spirit is spreading, it has caught the city of Hamilton, where our society is working enthusiastically along the lines of Civic Improvement, and interesting the school children in helping to carry out some of their plans, and we hope other cities and towns will make up in like manner.

The Barberry Shrub. This is a beautiful ornamental shrub which has so long held a prominent place among ornamental shrubs, has been tried, convicted and condemned. The students of Mycology (fungus plant life) have discovered that this beautiful shrub is the host plant upon which the wheat rust fungus spends the winter, and from whence sends forth broadcast the summer spores for the spread of the wheat rust. This may not be an evil in sections of southern Ontario, where wheat is no longer a principal agricultural crop, but in those parts where it is still grown, the barberry shrub is a nuisance, and must be destroyed.

The following are the important sections of the Act relating to the shrub, recently passed by the Ontario Legislature.

1. No person shall plant, cultivate or sell the shrub known as the barberry shrub, and every person guilty of the violation of this section shall be liable, on summary conviction thereof before a justice of the peace, to a penalty not exceeding \$10.00, besides the costs of conviction, to be recovered as provided by the Ontario Summary Convictions Act.

4. Where prior to the passing of this Act any has planted or has growing upon lands owned or occupied by him and situate within any city, town or incorporated village any hedge or fence formed by the said shrub or any plants of the said shrub, the Minister of Agriculture may, upon a petition signed by at least three owners or occupants of lands in an adjoining rural municipality, and after the report of one or more qualified persons appointed by the Minister for such purpose, require the person owning or occupying the said lands to remove and destroy such hedges, fences, or plant, and upon his neglect or refusal to do so within one month after service of notice in writing regarding such removal and destruction, the Minister may cause the same to be removed and destroyed.

5. Provides for Compensation ; and

6. Defines the variety as *Berberis Vulgaris* L.

Unfortunately for landscape gardeners, the beautiful purple leaved Barberry is a variety of *vulgaris*, and is included under this Act as an enemy to wheat growers, and therefore doomed to destruction.

THE ALPHABET OF SUCCESS.

Attend carefully to details.
Be prompt in all things.
Consider well, then decide positively.
Dare to do right, fear to do wrong.
Endure trials patiently.
Fight life's battles bravely.
Go not into the society of the vicious.
Hold integrity sacred,
Injure not another's reputation.
Join hands only with the virtuous.
Keep your mind free from evil thoughts.
Lie not for any consideration.
Make few special acquaintances.
Never try to appear what you are not.

Observe good manners.
Pay your debts promptly.
Question not the veracity of a friend.
Respect the counsel of your parents.
Sacrifice money rather than principle.
Touch not, taste not, handle not intoxicating drinks.
Use your leisure for improvement.
Venture not upon the threshold of wrong.
Watch carefully over your passions.
Extend to everyone a kindly greeting.
Yield not to discouragement.
Zealously labor for the right, and success is certain.

MEN WHO HAVE SUCCEEDED—II.

THOS. MEEHAN, PHILADELPHIA.

A Remarkable Career—How He Rose from Small Things to Great—An Example to Young Canadians.



FIG. 2305. THOMAS MEEHAN.

IN part owing to his most valuable labors in connection with that well known journal, Meehan's Monthly, and in part owing to his great success as a nurseryman, the name of Thomas Meehan has become a household word among the fruit growers of America. Success in life

does not seem to depend so much upon outward condition, or even upon college training, as upon that inherent faculty which some men have of taking advantage of opportunities which lie along their pathway, and turning them into gold, or into position.

On Tuesday, the 19th of November, this noted botanist and nurseryman passed away, aged seventy-five years, mourned by a large circle of personal friends and associates in scientific pursuits.

We are only able, in our limited space, to give a most condensed account of Professor Meehan's life and labors, as a source of inspiration to young Canadians, who may thereby be led to seek the realization of some praiseworthy ambition.

Early Life.—He was born near London, England, in 1826, and soon after this date his father became head gardener upon a large estate in the Isle of Wight. "Here, in the backwoods of Squire Young's Scotch fir plantation, young Thomas Meehan used to love to sit on

the brown pine-needles and alarm suddenly the young snakes till they scampered into their mother's mouth for protection. With no other boys to play with for miles around, he spent his time in writing boyish essays on what he saw. In after years, one essay of an eight-year-old boy got

into print, and brought on him a burlesque by Dr. Lindley, the eminent horticulturist and botanist, of England, in an early number of the *Gardeners' Chronicle*, of London—a cut with Meehan's viper still further evolutionized till its tail had become sagittate, so that it could spear a mouse and pass it to its mouth without moving itself. Professor Brown Goode, of the Smithsonian Institution, took up the question and proved by overwhelming evidence that the eight-year-old boy was right. A cut of the "Meehan viper," as it originally appeared in the *Gardeners' Chronicle*, December 16, 1848, is herewith reproduced."



FIG. 2306.
MEEHAN'S VIPER.

It was not that his father and mother did not appreciate the value of an education but because the schools were not at hand, that his education was neglected, except for such rudiments as his mother could find time to give him, until the age of ten, when he was given two years at a Lancastrian school, after which he went into regular work in gardening under his

father's training. But success was in him, and circumstances could not bar it. He determined to know, and spent his evenings in the study of botany and horticultural books and literature, thus early evidencing that habit which in later life brought him, with only two years of school life, the well earned reputation of scholarship in specific lines, superior to that of hundreds whose names are adorned with B.A., Ph.D., M.A., or other titles.

Aptly in connection with his life have the following lines by Lowell been quoted:—

No man is born into the world, whose work
Is not born with him—there is always work,
And tools to work withal, for those who will
And blessed are the horny hands of toil.
The busy world shoves angrily aside
The man who stands with arms akimbo set,
Until occasion tells him what to do—
And he who waits to have his task marked out
Shall die and leave his errand unfulfilled.

At twelve years of age he began contributing articles of scientific value to the public press, and thereby was brought to the notice of the members of the Royal Wernerian Society, and made a member while still a mere lad of about fifteen! While still in his teens, young Thomas formed an excellent plan for the continuation of his studies; he associated together a band of young men who met at nights to take up languages, mathematics, chemistry and studies, the one most advanced in a study always taking the lead of the others,—a scheme of work afterward developed into our well known Mechanics' Institutes.

Positions of Trust.—His first position was that of Head Gardener to Paymaster Vaux, and during the next five years he filled several engagements, each one giving him valuable opportunities for gaining a knowledge of details of horticulture. This was especially true of his engagement at Kew Gardens, where he had charge of houses containing plants from all parts of the world. These opportunities he made the most of; for example, at Kew he made a catalogue of 1600 varieties, studying up the history of each. At the same time he continued to contribute to the public press, and thus made the most of every opportunity for advancement.

Through a friend he was induced at the age of twenty-two to come to America, where his first engagement was with Robert Buist, as superintendent of nurseries; afterward he filled several positions of trust, as, for example, that of manager of Bartram's gardens, and in 1852 that of Cope's



FIG. 2307. THOMAS MEEHAN'S OFFICE.

grounds and conservatories; during which time also his pen was always busy.

Meehan's Nurseries.—In the spring of 1854 Mr. Thomas Meehan decided upon a bold and independent stroke, and, with the seeds he had collected from time to time and \$1000 of his savings as his capital, he rented ground in upper Germantown, and established what are now so widely known as Meehan's Nurseries. Here was got together the first collection of the beautiful native trees and shrubs of America, which soon required much additional land, until in time some seventy-five acres was completely covered with nursery stock.

His title of Professor came to him on his

being appointed State Botanist, and Lecturer at the University of Illinois.

Travels.—Thomas Meehan travelled much, including trips to Canada, Alaska, the far West, and in all these his one thought seemed to be the study of his favorite science. His mastery of details was well proven by his ready acquaintance with plants. From every land "Plants, specimens, twigs, leaves or flowers," it is said, "were almost daily received at his office for identification, and it was a cause for wonderment to those about him to see him, usually without hesitation, write off the names and possibly add some remarks about their history."

Writings.—He was a prolific writer, and among his productions we may just mention "The American Handbook of Ornamental Trees"; frequent contributions to the "Horticulturist" (American) on Landscape Gardening; the editing of the Gardener's Monthly; agricultural editorials of Forney's Weekly Press; important papers before the A. A. A. S.; Native Flowers and Ferns of the U. S.; many of the articles in Meehan's Monthly, etc., etc.

Public Service.—To his lasting credit, let us chronicle of Mr. Thomas Meehan, his public and philanthropic spirit. Neither business affairs, nor literary work, was allowed to interfere with his interest in the public schools and public parks. In the interest of the first of these, he was instrumental in securing \$2,000,000 for new school buildings, and, in the second, his influence led to the organization of the City Park Association, and the laying out of some twenty-eight small parks, as public resting places,

in various parts of the town. Among the honors conferred on Prof. Meehan, and well deserved, was the Veitch medal presented for "distinguished services in Botany and Horticulture" and this is all the more noteworthy because he was only the third American to be so honored.

Our young Canadian readers should study the face of one whose career has been so remarkable for achieving great results with fair opportunities, and therefore we have secured from Mr. S. M. Meehan, the son who now edits Meehan's Monthly, a good cut of his respected father. He sent in addition, a cut of the old office, adding that "the office shown in the picture has been in use, though added to, from the commencement of father's business in 1854; and nothing can be much more strongly connected with his daily life, for he went there every morning almost as regularly as he ate his meals,—right up to the time of his last sickness."

Use of Cover Crops and Fertilizers.—Prof. I. P. Roberts, of Cornell University, says: "Cover crops may, in a measure, take the place of fertilizers and manures. They are not, however, a universal panacea for all soil deficiencies, neither are they a full substitute in all cases for fertilizers. There is always a wide field for the profitable use of one or all of the concentrated forms of fertilizers named, and in many cases there is also a special place for the use of fertilizers, therefore the more need of honest goods. Commercial fertilizers furnish available plant food, but no humus. The cover crop furnishes both, but it is only fair to say that the plant foods in the former are more available than in the latter. Cover crops improve the physical condition of the soil, lessening the cost of tillage. Physically, fertilizers benefit the soil little or none. The humus furnished by the cover crops increases the availability of the plant food already in the soil; fertilizers do not. Cover crops shade the land and conserve moisture.

"It is impossible to accurately compare the cost of fertilizers with the cost of seeds for the cover crops and the preparation of the soil for them. The cost of increasing productivity by extra tillage, by the use of fertilizers, by cover crops or by all three means, can only be determined in each case by the farmer interested. I give below a single illustration of what a cover crop contains, knowing that another cover crop, under other conditions, might either be more or less valuable. Second growth of clover, furnished in roots and tops per acre, the following: Nitrogen, 138.86 lbs.; phosphoric acid, 87.85 lbs.; potash, 109.90 lbs. There is removed by 25 bush. wheat and accompanying straw, nitrogen, 43 lbs.; phosphoric acid, 20 lbs.; and potash, 27 lbs. It is believed that most of the nitrogen taken up by legumes is secured from the uncombined nitrogen in the atmosphere. The clover did not add to either the stores of phosphoric acid or potash. The plant took them from the soil and made them available."

OUR FRUIT INSTITUTES.

FROM Mr. Creelman's report of these meetings it will be seen that a new and most effective line of operation has been undertaken by our Association, bringing a fruit expert in close contact with the fruit men in every section, and coupling practical demonstrations with verbal instructions.

Mr. Hutt's addresses stirred up much discussion, and led to a considerable improvement on the crude methods of pruning commonly followed. About the middle of April, Mr. George E. Fisher, Provincial inspector of San Jose Scale, conducted three of these meetings in Lincoln County, in the orchards of A. H. Pettit, Grimsby; Chas. Purdy, St. Catharines; and J. J. Cook, St. Davids. The Demonstration Meeting in the orchard occupied about two hours, from 2.30 to 4.30, at which several spraying mixtures were made and applied; and in the evening an address, giving details and formulæ, was given by Mr. Fisher, who answered a great number of questions to everybody's satisfaction.

THE SPRAYING MIXTURES.

Crude Petroleum was first applied at each place with a combination pump, in the proportion of twenty-five per cent. of the oil to seventy-five per cent. water. This is the most effective spray known against scale insects, is most simple of application, and it may be applied in the finest spray imaginable. It is also a remedy for aphids on the cherry tree, which hatch out just before the leaf buds open. Every inch of wood should be covered in treating for scale, and the work should be done before the buds open. The cost is about \$5.00 a barrel delivered in the Niagara District.

Fish Oil Emulsion.—While the crude petroleum was being applied to the experimental rows of trees, Mr. Fisher prepared this emulsion, with full explanations. This he said is a combination of oil and potash without saponification, which is therefore more effective than any soap, and easier prepared. For ten gallons of this mixture the following is the formula: 5 quarts of fish oil, 5 pints boiling water, $1\frac{1}{2}$ pounds whale oil soap (or even of ordinary soft soap). Churn five minutes, add $2\frac{1}{2}$ pounds caustic potash, and enough water to make ten gallons. It is expected this will prove more effective than whale oil soap and is less expensive, ten gallons costing only about sixty cents, compared with \$1.00 for the soap. This is an excellent remedy for cherry aphids, applied just before opening of the buds, also for plum pockets, peach curl, in fact a general substitute for whale oil soap.

Lime, Sulphur and Salt.—While the fish oil emulsion was being applied to the trees, Mr. Fisher proceeded to make the lime, sulphur and salt solution. The formula was, lime 35 pounds, sulphur 15 pounds, salt 10 pounds. Boil two hours, and apply hot. The lime was slacked first, covering it three or four inches deep with hot water. This is applied once, just before foliage opens. The trees treated were first a golden color and then a golden white, every portion from the ground up being treated.

Kedzie Mixture.—This is a mixture of white arsenic, and is more effective than paris green, because the great demand for the latter has caused much adulteration. The formula is, 2 pounds white arsenic, 4 pounds of sal soda. Boil in two gallons of water for fifteen minutes. This will make two and a half gallons of the stock solution.

Use one pint in forty gallons of water, adding two pounds fresh slacked lime. This is excellent for all insects that eat the foliage, such as the canker worm, tent caterpillar, etc. It is also useful in killing curculio and codling moth. It may be used in the Bordeaux mixture.

QUESTIONS ANSWERED BY MR. G. E. FISHER.

Is Gillett's lye a good spray?

It is useful in cleansing the bark of trees, but it is soda, not potash, and I think the latter more useful. Mr. D. J. MacKinnon said he had used Gillett's lye to counteract the evil effects of an over dose of crude petroleum on his cherry trees, and had thereby saved his trees.

What is the cost of potash and fish oil?

Potash costs from seven to eight cents a pound and fish oil thirty-five cents a gallon.

Do you advise applying crude petroleum without dilution with water?

No, I do not. It is much safer to apply it diluted. Crude petroleum should not be applied to peach trees at all; they are quite susceptible to injury from it.

Would crude petroleum destroy the eggs of the Canker worm as well as cherry aphids?

I am inclined to think it would if applied just before their hatching season.

Where does the aphid winter?

The eggs remain in the bark near the buds all winter, and hatch out just before the buds open, so the young are waiting there to feed upon the leaves. Mr. Emory of Burlington, used whale oil soap, two pounds to a gallon

of water, and thoroughly cleaned out the aphids with that spray.

Mr. L. Woolverton said he had used a very fine kerosene spray, with an atomizer to his rose bushes for destruction of green aphids without injury to the young foliage, and he proposed to try undiluted crude petroleum for cherry aphids, put on with a very fine nozzle.

Mr. W. H. Bunting had used diluted crude petroleum for scale and found that he could keep it under control by this spray.

Is not the Lime, Salt and Sulphur wash more expensive than Bordeaux?

No, the one application costs about one cent a gallon, possibly a little more than one application of the Bordeaux, but you see you only apply it once, coating the tree before the foliage comes out.

At Mr. Pettit's, we noticed that the ten gallons mixed covered ten medium sized pear trees, so in that case, the mixture costs only one cent a tree. The men were about five minutes at each tree.

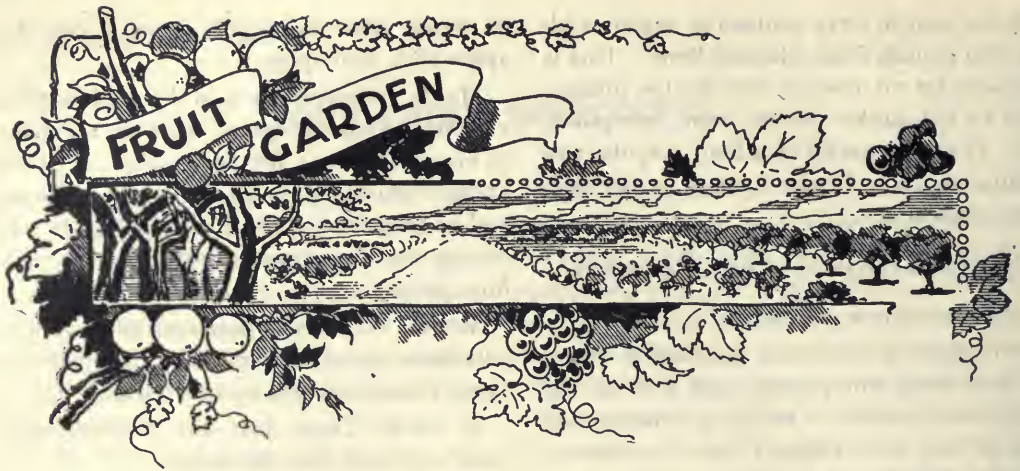
Two hours is surely a long time to wait for the mixture to cook?

Well, if you have much spraying you need something bigger than a kettle. You need two large boiling pans, and let one pan full boil while you apply the other, and in this way you can keep the pump moving.

Does peach curl winter on the trees?

I have no hesitation in saying that it does, and I think apple scab does also; hence cleaning the tree bark may rid use of both scab and peach curl.





OBSERVATIONS ON BUDS.*

BY PROF. H. L. HUTT, B. S. A., O. A. C., GUELPH, ONT.

BUDS afford a very interesting subject for study, because they represent the possibilities of the tree, not only in the growth of leaves and branches but also in the production of flowers and fruit.

Their Systematic Arrangement.

First, let us notice where the buds appear upon the stem or branch. At the end of the branch will always be found a well-developed prominent bud, known as the *terminal bud*. Upon this rests the responsibility of extending the growth of the branch. Along the sides of the branch are numerous *lateral buds*, which share the varied responsibility of producing leaves or branches or fruit.

If a growing shoot be examined in the summer, when out in leaf, it will be noticed that each bud is situated in the axil of a leaf; or, if it be examined in the winter, the scar left by the fallen leaf may be seen under the bud. Such buds are known as *axillary buds*, because they are formed in the axil of a leaf. If the branch is from an elm or basswood, or any of the ordinary

fruit trees, the buds will be found to be alternately arranged along its sides. But if the branch is from an ash or maple, or lilac, it will be seen that they are arranged in pairs opposite each other. The buds, therefore, naturally have a regular order of arrangement, which varies in different kinds of trees.

Accidental Buds.

Sometimes buds are formed which do not arise from axil of a leaf. Such buds are usually the result of some injury to the part where they appear, and are known as *accidental* or *adventitious buds*. The suckers, or water sprouts, that make their appearance on large limbs where pruning has been done, usually arise from buds so formed.

Old Country gardeners, who give great attention to the training of trees into fancy forms, often resort to the practice of nicking the bark so as to induce the formation of accidental buds, from which branches may be grown wherever desired.

As there is a difference between the origin

*First Lessons in Fruit Growing—V.

of these buds and those formed in the ordinary way, there is also a difference in the connection which branches, arising from them, have with the branch upon which they are situated. Terminal and axillary buds are formed as the young shoot grows, and

are connected with the pith or centre of the shoot. The branches which arise from such growth are therefore formed in the tree. Accidental buds are formed on the older wood, and, as they originate in the cambium layer, they have no connection with the pith or centre of the branch; consequently the branches produced from them are not deeply seated. That is why branches from such buds may at first be pulled off so easily. Each year's growth, of course, helps to bury them deeper, and after a time, they become as firmly united as the other branches.

What Buds May or May Not Do.

If we observe buds to learn what they produce, we will find that some produce leaves or branches. These are called leaf-buds. Others bear blossoms and fruit and are known as fruit-buds. Others simply do nothing, but remain inactive. These are dormant buds. Let us study each of these classes of buds a little more carefully, and we shall learn some interesting things about them.

The Buds That Grow.

Leaf-buds, of course, produce leaves, but every perfect leaf-bud is also capable of producing a branch. This is one of the most important points to know in connection with the propagating and pruning of trees. It is, in fact, the foundation upon which is based all of the most important nursery operations in propagating by cuttings, by layering, by grafting, and by budding.

The terminal bud nearly always produces a branch, or it at least extends the growth of the branch on which it is situated.

The lateral buds are all capable of producing branches, but only a few of the strongest ones near the end of the shoot naturally do so. If, however, the end or the branch should be cut off, thereby giving one of the less vigorous buds below the prominent position of a terminal bud, it

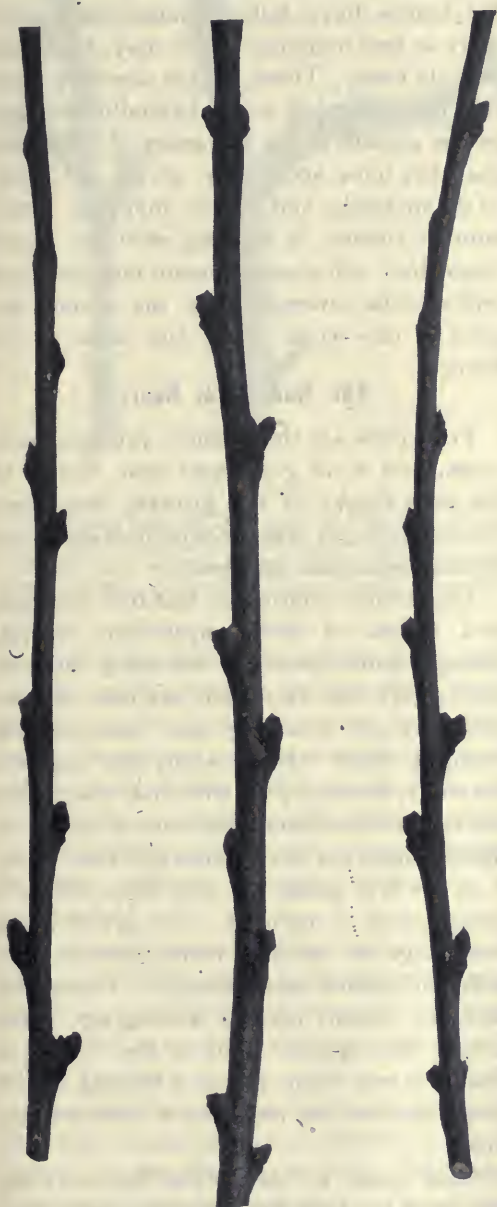


FIG. 2309. PEACH SHOOTS.

The large buds near bottom being fruit buds and the smaller single ones above leaf buds.



FIG. 2310.

(b) Branch of Sour Cherry, showing fruit spur forming on two year old wood, and fruit buds at the base of new wood.

(a) Branch of Sweet Cherry, showing these young fruit spurs with clusters of fruit buds; also plump fruit buds at base of new wood.

(c) Another of the same, with lengthened spurs, which have been fruiting seven or eight years.

soon rises to the occasion and produces a branch, as well as if it had been a terminal bud from the start. Any perfect leaf-bud may thus be made to produce a branch by cutting off those above it and giving it the position of a terminal bud. In this respect buds and some people are much alike—they

do much or little depending upon the prominence and responsibility of the position in which they are placed.

The Discouraged Buds.

If we examine any vigorous shoot after the leaves have fallen, numerous small, more or less indistinct buds may be found near its base. These are the dormant buds that have been left so far behind in the race by the growth at the extremity of the shoot that they have apparently given up trying to do anything, and unless they are given another chance, by heading off those above them, they will always remain inactive, and will soon be covered up by the annual deposit of new wood along the sides of the branch.

The Buds That Bear.

Fruit-buds are those which produce blossoms, and if all goes well bear fruit. In the early stages of the growth, they were leaf-buds, or, in other words, fruit-buds are all developed from leaf-buds.

The transformation of leaf-bud to fruit-bud is one of those mysterious natural changes which go on so smoothly and imperceptibly that we usually see only the result without knowing just how it was brought about. If we study the question carefully, however, we will find that there are certain conditions that have a direct influence upon the development of fruit buds.

In the first place the tree must attain a certain state of maturity. The age at which this stage is reached varies greatly with different species and varieties. Plums, for instance, usually reach a bearing age much sooner than apples, while a Ben Davis or Wealthy tree often reaches a bearing age in about one-half the time that a Northern Spy does.

Then again, we may notice that anything may tend to check the vigor of growth hastens the development of fruit-buds. For instance, trees that are more or less checked



FIG. 2311.

(a) Three-year-old fruit spur of Lombard Plum. Fruit buds clustered around end of spurs.

(b) Another of the same, after ten or twelve years growth. The rings show annual increase in length.

in growth by being planted on poor soils usually begin bearing sooner than those growing more vigorously upon moist rich soils. Apple and pear trees which have been stunted and made dwarf by grafting on slow-growing stocks usually begin fruiting in one-half the time that the same varieties do when allowed to grow unchecked as standards.

The transformation of leaf buds to fruit buds can sometimes be prematurely brought about on a single branch of a tree by tying it down so as to check the vigor of growth at the extremity.

The time required for the development of fruit-buds varies with the different kinds of fruits. In the peach and apricot, the transformation takes place during the latter part of the first season of growth, and fruit is borne the second season; while in the apple

and pear the change does not apparently take place till the second season. The bud that year produces a cluster of leaves, enlarges considerably, and bears blossoms and fruit the third season.

Fruit-Buds Distinguished From Leaf-Buds.

One of the most striking differences in the appearance of the fruit-bud which distinguishes it from the leaf-bud in its rounder and plumper form. This may easily be noticed when examining a branch of any of the stone fruits, such as the peach and cherry, Figs. 2309 and 2310. In the kernel fruits, such as the apple and pear (Fig. 2312), the fruit-bud has the distinction of being the prominent bud on the end of the fruit-spur. In the plum and cherry, where the fruit-buds are usually grouped around the end of the



FIG. 2312.

Pear Fruit Spurs, showing scars where fruit has been borne, and fruit buds on end of spurs which should bear again.

spur, the leaf-bud, more pointed in appearance than the others will be seen, in the centre of the group, which extends the growth of the spur (Figs. 2310 and 2311).

In the peach, the fruit-bud may be found somewhere about the centre of the shoot.

Another distinctive feature of the fruit-bud is that it usually enlarges and shows signs of growth in the spring much earlier than the leaf-buds.

Simple and Compound Buds.

The peach and apricot have simple fruit-

buds, that is, each bud produces but one blossom. Most of the other trees have compound fruit-buds, which bear two or more blossoms. The plum buds bear usually two or three blossoms, the cherry four or five, and the apple and pear six or eight. Hence, the peach and apricot are always produced singly along the branch, while the other fruits may hang in clusters, although this does not always follow, particularly with apples, as only a portion of the blossoms usually set fruit.

THE DIAMOND GRAPE.

THE following additional notes on the value of Moore's Diamond have been received, and our readers will note the great variety of opinions with regard to it. This is of course due in part to the difference of adaptation to different localities:—

"SIR,—I have fruited the Moore's Diamond Grape for six or seven years, and consider it one of the best of our white grapes for the amateur. It is a vigorous grower and good bearer, and of a sprightly vinous flavor, far in advance of the Niagara. It is, however, a little inclined to rot and not as good a shipper, but I consider it valuable for a near market." A. M. SMITH, St. Catharines, Ont.

"SIR,—Respecting the subject of your letter of 11th inst., I beg to say that I grew Moore's Diamond Grape for several years. The vine was quite hardy and produced plenty of wood. After fruiting it three years I found, that although the fruit was of air quality and the clusters of moderate

size, the small quantity of fruit produced yearly, when compared with the Niagara, would not pay me for the trouble of its further cultivation. It was therefore destroyed." THOS. BEALL, Lindsay, Ont.

"SIR,—I have not found the Moore's Diamond Grape profitable. Three vines planted in 1892 on a sandy loam were totally destroyed by the continuous zero weather of February, 1899. They were fine strong vines, but very tender as compared with the Worden and not so hardy even as the Niagara. As to fruiting qualities, I found them earlier than the Niagara, but very spasmodic and unreliable, one year a heavy crop and the next one or two, few if any at all. The grapes are of good quality, free of musk, with large often shouldered, handsome, compact bunches. I still have about a dozen young vines, planted in the spring of 1899. From my present experience I could not recommend it for commercial purposes." A. W. PEART, Freeman, Ont.

ORCHARD INSTITUTE MEETINGS.

BY G. C. CREELMAN, SECRETARY.



At the last annual meeting of the Ontario Fruit Growers' Association, we were requested to arrange for a series of orchard institute meetings throughout the Province. At the beginning of the year we commenced corresponding with fruit growers in almost every section of the province in order to find out the best points at which to hold meetings. It was deemed best not to commence the series until the close of the Farmers' Institute meetings in March. We realized also that this would be a better time for practical demonstrations than when there was more snow on the ground.

Advertising.

Again we found the press of this country quite willing to co-operate with us in forwarding this movement. We sent notices to each newspaper in the several districts where meetings were held, asking them to publish the dates and places of meeting, and and also a short synopsis of the work we hoped to accomplish. This was done so well that in almost every instance splendid meetings were held, and we are now getting letters every day congratulating the Ontario Fruit Growers' Association on the success of this new venture.

Districts Visited.

In all 49 meetings were held, reaching from Iroquois in the East to Leamington in the West, the province being divided for this purpose into seven districts.

- 1st. The Ottawa and St. Lawrence Valley District.
- 2nd. The Lake Ontario District.
- 3rd. The Burlington District.

- 4th. The Niagara Peninsula.
- 5th. The Georgian Bay District.
- 6th. The Lake Huron District.
- 7th. The Lake Erie District.

Plan of Campaign.

The object of the meeting was twofold, first, to give a practical demonstration of the best methods of pruning and grafting, and the general care of an orchard, together with a discussion on matters generally pertaining to fruit. Secondly, the formation of local Fruit Growers' Associations in each place for the purpose of giving the fruit growers an object in meeting together once a month to discuss their business. This was the work of the evening meeting, and many associations have been formed and plans laid for regular meetings to be held, where the following subjects, among others, will be discussed:

Methods of cultivation.

Picking, packing, grading and handling of fruits.

Co-operative shipping, and co-operative buying of packages.

Practical results in co-operative buying.

Already the Georgian Bay people have taken this matter up, and have sent out a circular to each of their five branch associations, containing the following information:

"Believing it to be the general wish of the members of the Georgian Bay Fruit Growers' Association to do something in the co-operative buying of packages and chemicals with the object of placing orders during the slack season, thereby obtaining a reduction in prices, we would be glad to have at your earliest convenience a return of the enclosed blank form properly filled out."

Form.

I agree to take the following stock to be delivered at the undermentioned place and at prices not to exceed those mentioned below.

....Apple barrels	at....each	Delivered....02
....Apple boxes	at....each	Delivered....02
....Fruit baskets	at....each	Delivered....02
... lbs. Paris Green	at....per lb.	Delivered....02
....lbs. Blue Stone	at....per lb.	Delivered....02
	Signed.....	

Place of Delivery.....

Suggestions:-

The Secretary at the same time asks for any suggestions that would be for the general welfare of the Association, and asks the ideas of each member upon the following subjects:

Co-operative buying of supplies, trees; also what they think of establishing an information bureau for the purpose of collecting data on the transportation question, and also to keep the members informed as to fruit prices and other matters of special interest to fruit growers.

In the Lake Huron District.

Reports from this district show a decided interest in the meetings, and the series closed with 108 paid members, and the formation of six societies. These separate societies hope to join hands and send delegates to a central point at an early date when they will organize the Lake Huron Fruit Growers' Association. With Mr. Sherrington in charge of the fruit work at Walkerton we have no doubt this Association will always be a useful organization.

In the St. Lawrence Valley.

Here Mr. Harold Jones, Director of the Experimental Fruit Station, Maitland, held a series of five meetings. An association was formed at each place, and local parties have written to say they do not regret having travelled, some of them on foot, ten miles to the meeting. At each place an orchard meeting was held and in many instances

local men took an active part. This is especially true in Iroquois, where Dr. Harkness, who has always been an active worker for the fruit interests, met with the farmers and took part in the discussions.

In this district, strange to say, it was necessary to clear up some superstitions. At one point Mr. Jones was confronted with the statement that it was understood they had been sent there by the Ontario Government to cut down their trees, because they believed there was an insect called the San Jose Scale, working in their orchards. Mr. Jones was able to inform them that there was no scale in that part of the country, and took occasion to tell them how serious the pest was in other parts of the province.

The Lake Erie District.

Here again, a fruit experiment station man takes part in the work, Mr. W. W. Hilborn, of Leamington. A fruit man writing to us after the meeting in Kingsville says:

"I was present yesterday at the meeting of the fruit growers and heard Mr. A. McNeill and Mr. W. W. Hilborn discuss the subject of 'Care of Fruit Trees.' We afterwards adjourned to an orchard where they splendidly demonstrated how to prune the different kinds of trees and bushes. It was very instructive and I wish it could be done in every neighborhood each season."

In Halton County.

Commencing at Bronte, on the lake front, and working back to Waterdown and Georgetown, a series of good meetings was held, Mr. Murray Pettit being the local director in charge. A full report of one of these meetings appeared in the "Weekly Sun," March 29th.

Lake Ontario District.

Here good meetings were held, commencing in York County and working east to Prince Edward County. The series is not

yet completed, but such reports as we have show, as we expected in this splendid apple-growing district, first class meetings and many strong local associations formed as a consequence. The local directors, Mr. Elmer Lick, Oshawa, H. J. Snelgrove, Cobourg and W. H. Dempsey, Trenton, were assisted by Mr. G. C. Caston, of Craighurst and Mr. G. H. Vroom of Middleton, N. S.

Practical Suggestions Made at Orchard Meetings.

In planting, trees should be given a slight slant toward the prevailing wind. The main roots should be placed so as to brace the trees against the wind, and the tree should be so headed that the main branches would not when loaded bend directly away from the tree and so be apt to break off.

Trees, after they have grown crooked, may be straightened somewhat by the use of the spade early in the spring when the ground is soft.

In pruning the south side of the tree it can be left a little thicker than the north side, as it receives more light and moisture.

It pays to thin over-loaded trees at least 20%; as the remaining fruit will be of better quality.

A man who does not know a fruit bud from a leaf bud should never be allowed to prune a tree.

You can hasten the development of fruit spurs and multiply the fruit buds by checking the growth of the wood. This can be done by pruning the roots with a spade, or by nipping off the ends of twigs. The latter method is preferable as it does not impair the vitality of the tree as does the root cutting.

Where large wounds are made in the trees from cutting off large limbs the wound should at once be painted over. A good paint mixture is made by mixing 2 lbs. cement with 10 lbs. of milk. For an old wound where rotting has set in further in-

jury may be prevented by using two parts of cement and one of sand, completely covering the wound so as to exclude the air.

Orchards should be cultivated constantly until the middle of July, then a cover crop of clover, rape or rye, to be plowed under next spring.

Apples must be handled more like eggs than turnips if we expect to realize good prices for our fruit.

The Baldwin, Ben Davis, Greening and Spy are at present the favorite commercial variety.

Four years ago Reeve Coyle of Colborne purchased an orchard containing ten acres. The price was \$2,600. The crop gathered from that orchard in 1900 netted, after all expenses were paid, \$2,130. Mr. Coyle made the following statement at an orchard meeting in Colborne last week:—

"I shipped 800 barrels of apples from my orchard two years ago. The dealer to whom I consigned them said they were the best apples he had ever sold in the Liverpool market. There were not five barrels of wormy or scabby apples in the lot. The superiority of this fruit was due to the fact that I had persistently cultivated the orchard and pruned and sprayed my trees."

Bordeaux Mixture.—After the blue stone is dissolved it should be put in 20 gallons of water, and the lime after it is dissolved should be put in another twenty gallons of water. The two mixtures may then be brought together. If the lime and blue stone are mixed together undiluted they will curdle.

Mr. Caston strongly advises the use of lye as a wash for trunks of trees. It should be applied every second year after the old bark has been scraped off. It not only destroys all bark lice, but seems to have a tonic effect upon the tree.

Mr. A. McNeill says, "Each bud has its own individuality apart from the variety to which it belongs, just as each man has his

individuality apart from his race. No two buds, no two trees are exactly alike. Hence in budding or grafting, it is important we should select for that purpose."

Speaking at the Georgetown meeting, Mr. McNeill also made the following remark:—"I do not think our Fruit Experi-

ment Stations could do more useful work than by developing good trees from which to supply cuttings for grafting on commercial orchards in their neighborhood. This would be more useful work than developing varieties of doubtful merit."

Township Inspection for Scale—One of the most alarming features of the plague of scale is the apathy of some orchardists. Mr. Purdy's orchard we found badly infested; his peach trees, Japan plums and pear trees were covered with it, and yet he was most apathetic. "I cannot get rid of this scale" he said, "it will clean out my orchard in a year or two I expect, but I lived before I had an orchard, and I can live after it is gone."

Now, if nobody suffered but Mr. Purdy, the situation would not be so serious; but this plague is carried by wind and insects, robins carry it on their feet, and their very nests are alive with it, even flies will carry it; what then will result if Mr. Purdy and others like him, have breeding orchards from which these pests will spread and cause their neighbors to suffer. Fortunately under a recent Act, local inspectors must be appointed by any municipal council, on the petition of fifteen ratepayers, and such inspectors will compel the owner of any such pestiferous orchard either to destroy his trees at once by fire, or to treat them as directed by provincial inspector.

Action was at once taken both in Grimsby, St. Catharines and Grantham, to the appointment of such local inspectors for each of these municipalities.

The Stoney Creek Basket Factory is at work and has been since January, turning out several thousand baskets per day, in anticipation of a good crop the coming season.

About 30 hands are employed and the number will increase as the season advances.

The speed which the workman acquires is wonderful. In answer to my enquiry one man said he could make up from 400 to 500 a day. One little fellow of eight or ten was working in the divisions for berry crates. "I get," he said, "10 cents a hundred for making them up, and I can make that many in about one hour and a half."

The basket business is one of the most important industries, because of the immense number now used by our fruit growers, who always give them away with the fruit. A traveller for an Ingersoll house says he sold 250,000 between Winona and Grimsby right under the nose of the local factories. One reason for his success was a patent fastener which saves much time in closing up or opening; and then he was enterprising enough to have the new forms to correspond with the sizes required by the Act, while many of the factories are still at the old sizes, which will all need stamping the number of quarts they contain. The following is a list of the legal sizes of baskets:

No. 1. Capacity, 15 or more imperial quarts.

No. 2. Capacity, 11 imperial quarts, depth $5\frac{3}{4}$ inches.

No. 3. Capacity, $6\frac{3}{8}$ imperial quarts, depth $4\frac{5}{8}$ inches.

No. 4. Capacity, $2\frac{2}{5}$ imperial quarts, depth 4 inches.

No. 5. Berry box, 1 Winchester quart.

No. 6. Berry box, 1 Winchester pint.

THE QUARTER ACRE STRAWBERRY PATCH—II.

BY T. C. ROBINSON, OWEN SOUND.



FIG. 2313

Cultivation comes next. Some skilful growers say "begin the same day you plant, if the ground is dry enough," for it seems to start the plants into immediate growth. If not just then, as soon after as possible start cultivator and hoe close around every plant, or, best of all, loosen the soil with a hand rake. Keep the ground clean all summer. Don't wait for the weeds to start. To kill them before you can see them is by far the easiest way and pays the best. So long as the ground is loose on the surface, and the weather dry, the plants will do well without further cultivation. But as soon as a shower come the land settles, and the weed seeds sprout; so that as soon as the weather gets dry enough, cultivator, hoe or rake must loosen up the surface again, or the plants will suffer. This is the great rule in strawberry culture. But it is not for the strawberry alone. The strawberry does not need it any more than vege-

tables do. It is the one sure rule in growing a hoed crop of any kind.

Training.—Now for the training. This really involves a judicious sort of **pruning**. To get a large crop of fruit we want large plants and lots of them. and we want them well equipped with fruit-buds. These fruit-buds must be formed the summer and fall before fruiting; and the plants must have sufficient room and close cultivation in order to form them. Now most varieties, if allowed to grow unchecked, will use the sap, which we want to go to elaborate fruit-buds, in producing runners and young plants, and it will throw out these runners so as to root the young plants in the way of the hoe and cultivator, and especially so as to crowd each other. As a result, the matted row will contain a crowded mass of little plants which cannot be kept clean, and cannot produce more than one or two small fruit stems per plant. These will all push at once, or nearly so; and hence there must result finally an inferior crop of small berries, all ripening within a few days causing an embarrassment to pick, a glut in the market, a drop in prices—and then—nothing more! To avoid such disaster, we resort to **pruning** and **layering**. Cut off the first two three runners, which are apt to be weak. The benefit of this will speedily appear in vigorous growth and size of plant. Then when good stout runners start out vigorously, select four of them to complete the plantation, and keep all the others cut off the whole season.

Now for Layering.—Consider where we want the plants—out of the way of the cultivator and far enough apart to admit the hoe. I have fixed upon the double row as

the best in most cases. First choose one pair of runners to complete the old row. Lead one runner out towards the nearest plant in the row on one side, drawing a little furrow with a stick to keep it from getting blown out of place, and lead the other runner out in the opposite direction. When this is done with every plant allowing each runner to form just two plants, all the rows will be full of plants about eight inches apart.

Now lead out to one side the other pair of runners to form a second row about eight inches from the first row. You need not wait till the first lot of rows are finished before starting the second lot. Each runner to be layered had better be done as soon as it is ready. The process of forming young plants will be greatly hastened by placing moist earth over the runner close around where the roots of the little plant are to strike out—if the runner is strong enough. But beware of putting earth over a young budding runner, or it will die. When a couple of leaves as large as a fifty cent piece have formed on the runner, it is old enough to be covered on the side next the parent plant. Now when this layering is all done, your rows will be arranged in couples with paths of about twenty-eight inches between each couple and the next, and your quarter acre should contain ten or twelve thousand plants, everyone of which can easily be kept clean with little or no hand weeding, which is the great object. Of course runners will start to grow from the young plants as they form and afterwards. They must vigorously be removed if the best results are wanted. Do not be tempted to train out a third row on the other side of each original row unless you want to shorten the fruiting season in order to produce a great rush of berries at first. This would be an advantage with the very early sorts. Michel's Early, possibly Crescent, and especially Excelsior, will probably be decidedly more profitable grown in

triple rows eight inches apart, with paths of twenty inches between triplet and the next; because they come in just when prices are so high. Often the grower will make more money out of half a crop of these early varieties than of a full crop of later ones. Then when they have done their best, and the berries run down in size to mibbins, the wise cultivator will clip off all the rest of the fruit unripened so as to throw the remaining strength of the plants into foliage, new root-growth and fruit-buds for next year's crop. Some early varieties thus treated in triple rows, followed by later varieties in double rows, will spread the fruiting season over a month on level soil, while if the early sorts can be set on a southern or south-eastern slope on light land and the late ones on a northern slope on clay loam, abundance of fruit may be gathered for six weeks. But the slopes must not be steep.

Yield.—How much should such a plantation yield? The yield will vary, not only as to careful treatment, soil, fertility and season, but also as to the age of the plants. With fair treatment the same plants will fruit three years in succession. The first crop should be over 1,500 quarts in a fair season; the second about 3,000; the third about 1,000; but on rich soil in good seasons, careful treatment might produce twice as much in each case.

The best tool for working between the plants is a "push hoe." Get one made to order as I did if you can't find what you want in the shops. A piece of cross-cut saw blade about five inches long and two inches wide fastened by two rivets at the middle of one side to a single six-inch shank of $\frac{3}{8}$ inch steel attached to a good long rake handle—this can easily be fashioned by any machinist or good blacksmith for sixty or eighty cents. Let the shank be curved so that when you stand upright and hold the end of the handle in one hand, with the arm stretched down—

wards at full length, the blade will lie quite flat on the floor with the shank on the upper side. Now file or grind the blade always on the upper side, and you have a tool with which you can hoe all around every plant and cut runners without stooping or jar, and do it as fast as two men with common hoes, even if your muscles are those of a lady. Such a hoe indeed may be used to clean the wide spaces also, if you have no horse; but in this case the blade should be longer, so as to cut a wider strip. A foot wide is not too large for a strong man in loose soil, but it works much easier if the cutting edge is not straight, but comes to a point in the middle and falls away at each side like a half-flattened-out letter "V." But beware of having two shanks attached to the blade like the old fashioned Dutch hoe, as they prevent the weeds from passing through in case you should be so unfortunate as to get behind with the work. But don't get behind if you can possibly help it. Your quarter acre patch can be hoed from beginning to end in a single day when the weeds are sprouting, more easily than it could in a whole week if they get established.

Varieties.—Stick to standard sorts for the crop, is the safe rule. Experiment with

novelties at one side in a small way, for that is how we get all our best varieties. Better not break a row with two varieties. Select your land, count your rows, measure their length, decide on how many rows for each variety, then order the plants.

For setting out eleven hundred plants on a quarter of an acre, I recommend to those just starting the following varieties in about these proportions: 500 Clyde, 300 Williams, 200 Excelsior, 100 Michel's Early. If the land is **very light**, and good Crescents can be obtained cheap, by all means get them instead of Clyde, but Clyde will sell far the best if you can raise them. If the land is low and mucky, William Belt may do better than Williams. If the berries must travel far or stay long in the box before using, leave out Michel's Early and add another hundred Excelsior, and in this case, if your land is rather clayey and quite rich, it might be well to grow good Wilsons instead of Clyde, because though smaller and less beautiful, the Wilson excels in firmness.

General descriptions of varieties, new and old, I must postpone to a later article, hoping that some who would be glad to grow this beautiful fruit may find these plain directions of some utility.

SOIL FOR CAULIFLOWER.

A deep, moist, clay soil is the best for cauliflowers, although good crops can be grown on any good garden soil. I cover the ground two or three inches deep with stable manure, and plow it in. Then harrow and furrow two and one-half feet apart. If I have well-rotted manure, I scatter it in the furrow and mix it with the soil with the cultivator; or, if the manure is not at hand, I set the plants and in a few days apply around them a little commercial fertilizer that is rich in nitrogen. Vegetables of which the leaves or stocks are the edible parts need plenty of nitrogen in an available

form. The plants are transplanted at different times from May until June. Cauliflower plants from the hotbed should not be set too early, unless they are well hardened, for they are more easily injured by frosts than cabbages. I do the most of the cultivation with the wheel hoe and horse cultivator.

To insure success in a season, one must have some means of irrigation. I have now irrigating works in my garden, so that I may be prepared for drouths when they come. The plants should not stop growing at any time, hence the importance of irrigating them during a drouth.—*Vicks' Magazine*.



BEDDING GERANIUMS.

BY W. H. HUNT, SUPT. GREENHOUSES, O. A. C., GUELPH.

IT is oftentimes a most difficult task to select the best varieties of these most useful and popular bedding plants, and those most adapted for bedding out purposes, from amongst the numerous varieties now offered by florists and nurserymen. Despite the fact that many of the most prominent landscape architects and gardeners consider that a bed of scarlet or of any decidedly prominent color of geranium is somewhat out of keeping and shows bad taste if planted on a front lawn, the geranium is still the one universally popular bedding plant amongst the great majority of flower-lovers. The increased demand for these plants every season of recent years have brought to the front many beautiful varieties and types that have proved most useful as decorative plants, whether for the greenhouse or window in winter, or for the lawn and flower-garden in summer. Those of us who remember the varieties of bedding geraniums grown upwards of a quarter of a century ago, such as Scarlet Stella, which though beautiful in color would with its narrow petaled flowers and its loosely formed truss, bear no comparison (especially in

form) with such varieties as J. P. Cleary or even of the better known Alphonse Riccard, Gen. Grant and others having good records as bedding varieties at the present time. The old pink Christine and the Dwarf Scarlet Gen. Tom Thumb grown so extensively about the time that Scarlet Stella was such a favorite, have all been superseded by many varieties of greater merit, not only as decorative plants for the garden but also for cut flower purposes for use in the home. Although the old fashioned varieties that I have mentioned had of necessity to be dropped from our list they will be remembered by old time plant lovers as having been most useful in their day and as being the progenitors of the beautiful varieties and types now in existence.

A New Era.—With the introduction of the really double flowering varieties Glorie de Nancy (scarlet) and Madame (pink) about the year 1866, came a new era in geranium life. These were the heralds of the beautiful semi-double varieties that are so popular at the present day. Both of the varieties mentioned caused quite a sensation at the time of their introduction, but like many other new types of

plants did not apparently meet the requirements of the flower-loving public even at that time, their strong rank habit of growth and the density of their flowers in the truss, made them undesirable as either greenhouse or garden plants. Like the earlier types of the single flowered varieties before mentioned these, however, were useful in their day, and were the pioneers of the lovely double and semi-double varieties now so extensively grown and admired.

Amongst the double and semi-double varieties of geraniums useful as bedding plants, there is none more reliable and deservedly popular than the rich crimson flowering variety, *S. A. Nutt.* Whether planted in masses or used in ribbon borders, or even as a simple plant in the border, this variety with its dwarf and free flowering habit, is generally regarded as the peer amongst what may be termed the ironclad varieties of geraniums, having a good robust constitution.

Amongst Scarlet Geraniums for bedding, *C. Morel* seems destined to become a great favorite. The trying season of 1901, with its alternate intervals of intense tropical heat for a few days, followed by a quite temperate spell for the same period, seemed unable to dim the lustre of its vivid scarlet flowers, or check it in its sturdy growth. Unless it develops some unexpected form of deterioration, the same as the *Bruant* geranium has of recent years, viz., in going back almost to a single flowering variety, *C. Morel* must have a place amongst the scarlet bedding geraniums.

Alphonse Ricard is also a reliable variety, succeeding well under very adverse circumstances, its flowers also give us a pleasing relief with their soft orange shading. *Raspail Improved I* do not consider a good bedding variety as it does not stand the sun well and is too upright in its habit of growth to make it a good bedding variety.

Beaute Poitevine is a good bright salmon flowering kind, and succeeds well outside in summer.

For a pink flowering variety *Jean Viand* can be recommended. Where this variety was tested last season it gave good results, stood the hot sun well, the flowers retaining their form and color even when severe heat and heavy rain storms sadly marred the beauty of many other varieties growing near it. The old dwarf growing variety *Waddington*, that has deservedly earned for itself the name of "*Pink Bedder*" as well as several other synonyms, cannot yet be discarded from the list of pink geraniums. For a small bed or for ribbon effect this variety is in my opinion still unsurpassed as a bedder, but is of little use as a pot plant or for winter flowering purposes.

Amongst the lighter colored double varieties, *La Favorite* for a white is probably the best white flowered bedding variety. *Hermine* that produces its ivory white flowers in such profusion, when grown as a pot plant for the window or greenhouse in winter, is not adapted for a bedding geranium, the hot sun stunting its growth and often stripping it almost entirely of its small delicate foliage. *Gloire de France*, another good variety when grown as a pot plant, is also of very little use as a bedding variety. Its pretty pink and white flowers and its pretty marked foliage, however, make it still one of the best varieties for a window, or for the conservatory.

Amongst the single flowering kinds, *Gen. Grant* for a scarlet still holds a place, and is very effective when massed in large beds, or when used in ribbon or mixed borders.

Meteor is another good variety, not quite as intense in color as *Gen. Grant*.

John P. Cleary comes as near what is considered a perfect flower as any of the single flowering varieties, and where tested has stood the sun extremely well. A fully

developed truss of this variety is a pleasing sight to all who love a soft orange scarlet flowering geranium.

Mrs. E. G. Hill is not yet surpassed for habit of growth and for producing a wealth of bloom under almost any condition of growth.

Dryden is a single flowering variety that promises well as a bedding variety. Its finely formed and beautifully blotched and tinted rose red flowers, makes it quite an acceptable addition to the list of single bedding geraniums.


Amongst the silver foliaged geraniums there is nothing can outdo Madame Salleroi, especially as an edging or border plant. Mountain of Snow is about the only other variety of silver edged geraniums worthy of growing as a bedding plant.

Tricolors and bronze geraniums cannot be included amongst the list of bedding geraniums, being far more difficult to succeed with than even the most delicate of our summer flowering begonias. As pot or window plants they still have a place, but are of too delicate a nature to succeed as bedding plants.

There are many more varieties of geraniums that could be spoken of as good bedding varieties other than those I have mentioned. Those that I have mentioned are varieties that will give good satisfaction with perhaps less care and attention than many other varieties, a fact that has influenced me materially in recommending them for out door decorative purposes.

HARDY PERENNIALS.

BY WEBSTER BROS., HAMILTON.

QUILEGIA *Oxysepala* continues to excite great interest when in flower ; it is the earliest of the Columbines so far as we know. This is the same variety disseminated as a premium some years ago by the F. G. A. as *A. Bergeriana*, but according to the Central Experimental Farm the former name is correct.

Anemone, *Queen Charlotte*, is a real beauty, it is the first pink *Anemone* of this class and is at the same time the best of all the Japan *Anemones*, being larger and of better substance than *Whirlwind* and a beautiful pink shade much like *Rose La France*. These *Anemones* may be flowered to great advantage, if lifted and potted before the buds begin to open, a little shade for a few days is all that is necessary to get them established ; then, if kept in a cool conservatory or even in a cold frame, away from the

wind or light frosts, the flowers open much larger and more perfectly.

Doronicum *plantagineum excelsum* is a dwarf yellow flowering plant, bearing handsome flowers resembling some of the *Sunflowers* ; it is very pretty but suffers somewhat during winter when the snow fall is light.

Helenium *Autumnal Superbum* is one of the most noticeable of late bloomers ; its flowers remind one of *Giant Buttercups* ; it is a plant that should have lots of room. When it blooms it is a specimen of great beauty.

Phlox *Etna* has proved the best scarlet variety of the tall *phloxes* we have tried. We are trying some of the *potentillas* from a British collection but fear they will not stand the rigor of this climate.



FIG. 2314. CAMELLIA.

SPECIMEN CAMELLIA.

BY W. H. HUNT, HAMILTON, ONT.

THE accompanying cut from a photograph of a splendid specimen of these almost forgotten greenhouse shrubs will, no doubt interest most readers of the Horticulturist, more especially those who have seen these plants in conservatories and greenhouses in the old land. There are few even of the smallest specimens of the Camellia to be found amongst our plant collections of the present day.

Very few plant lovers have been successful in their culture in Canada, three or four years of a gradual declining existence being as a rule the outcome of any attempt to grow these natives of Japan and China. Mr. Thos. Kilvington, the well-known Hamilton florist, has certainly overcome the difficulties usually experienced in the successful culture of the Camellia. The plant, as shown in the engraving, is really a noble specimen and can be seen at any time in his greenhouses. It is seldom that it can be found without a few buds or blossoms of its

beautifully imbricated rose-colored flowers, its flowering season usually extending from September until well on to June or July of the following year. It was planted in its present position by Mr. Kilvington about eighteen years ago and has produced annually, for ten or twelve years past, about two hundred and fifty blossoms. It is planted in an open border, in a lean-to house, having an east aspect. The border is about two feet six inches in depth and about three feet in width, so that it has plenty of root room as well as allowing facilities for an abundant supply of water at the roots. This latter condition is probably the principal factor in its successful culture. It endures a very variable temperature during the year from 50° in winter to 120° in the hottest days of summer.

The plant is about six feet in height and three or four feet through the densest part of the plant, and but for a severe annual pruning that it receives, it would, as its

owner remarked, soon require a much higher house to accommodate it. Near by the Camellia in the same border is a splendid specimen of the beautiful trailing shrub *Rhynchospermum jasminoides*, which at this season of the year is usually almost completely covered with its white, sweet scented jasmine-like flowers.

It is a pleasing sight, and will well repay a visit to Mr. Kilvington's green-

houses to see these choice specimens of plants that are so seldom seen now in greenhouse collections, not to mention anything of the pleasure a flower lover derives from a walk through his well kept and select general collection of florists' plants.

The accompanying photo was taken very recently at a time when it does not show up the plant to the best advantage, so far as its profuse flowering habit is concerned.

NEW FRUITS.

The McKinley Grape was introduced last year by Allen L. Wood of Rochester. It is a cross between Niagara and Moore's Early, and is two weeks earlier than Niagara in ripening. The originator claims that the berries are as fine as those of Diamond, and that the vine is very productive. The bunches are said to be compact and firm, and the fruit sweet throughout the pulp.

Perfection Currant.—The fact of this currant having received the award of the Barry medal at Rochester this season, leads us to look upon it as of real value. It was originated by Mr. C. E. Hooker of that city, and has been tested at the Geneva Station, where it has been given a favorable notice. Cuttings were planted in 1897 and these are now bearing so freely that it is pretty safe to look upon the bush as productive, while the size of both the cluster and berry are even larger than Fay. The flavor and quality, too, according to Prof. Beach, is better than either Fay or Cherry.

Harris Raspberry.—The originator writes us that we must plant the bushes in heavy rich soil, and that they must not be trimmed at all, at any time in the year, except to remove the dead wood; that they will be a failure if treated as other berries are treated. We have sent samples for testing to A. E. Sherrington, Walkerton, and A. E. Peart, Burlington. This raspberry was a chance seedling found growing near Rochester. The following points are claimed in its favor. (1.) A dwarf plant, needing no staking or trimming back. (2.) Fruit larger than Cuthbert. (3.) Longer bearing season, $\frac{1}{4}$ crop ripening before Cuthbert and $\frac{1}{4}$ after. (4.) Very hardy. The report of the Geneva Experiment Station gives it credit for greater productiveness than Cuthbert, a yield of 25 feet of row yielding 290 ounces, and Cuthbert only about 150. Prof. Beach wrote of it in 1896 as follows.—A row of Harris set in 1889 yielded nearly twelve pounds of fruit per rod in 1894. This is at the rate of over 5000 pounds per acre, with rows 6 feet apart as we grow them.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

QUESTION DRAWER.

Pears to Cover the Season.

1282. SIR,—I have about three-quarters of an acre here, clay soil, which I intend to plant in pears. I am planting because I do not like to see bare land, and I have no intention of building on it. I expect to derive much pleasure in growing the fruit, and I desire to make it as profitable as I can. I have done some farming and managed to make the farm pay expenses, so I hope to do all right in pears when I have found out what to plant. I am intending to plant 24 feet apart, I want the crop to drag through the whole pear season, so that I will have pears to use and sell from start to finish; and, what is more, I want to have the crop coming in so gradually that its care will furnish me with occupation over a long season, without amounting to a rush. There will be fifty trees. What pears I do not use I could likely find market for in the village, or at the canning factory; and I would like you to advise me what kinds to plant and how many of each. I want summer, autumn and winter pears, and it strikes me I should not have many varieties. From reading my journal and the reports of the fruit growers, etc., I begin to fear there is more difficulty ahead of me than I at first thought. At home in Norfolk, where we were farmers, we had Bartlett and

Flemish Beauty pear trees standing in sod, but never heard of blight, etc. We did not know there were these enemies.

Cayuga.

T. A. SNYDER.

For such a collection, as is proposed by our correspondent, chiefly for home uses, we would recommend the following as a desirable list:—

Summer—Doyenne d'Ete, Giffard, Wilder, Clapp's Favorite, Bartlett.

Autumn—Bose, Clairgeau, Sheldon.

Winter—Lawrence, Josephine de Malines, Easter Beurre.

This list would cover the season, beginning with that delicious little dessert pear, the Summer Doyenne, which is as pretty as it is good, and ripens in July; and ending with the Easter Beurre, which makes up in good quality what it lacks in appearance, and may be held for market until March.

Grafting.

1283. SIR,—I am grafting in this section this spring. There are some who have set out Talman Sweets for grafting; this will be the third year they have been planted. Would you advise them to be grafted this spring and if so would you graft them near the ground, just below the branches, or graft the limbs. Some want them done one place and some another, so I would get your opinion in the matter.

Port Perry.

JOHN MACLACHLAN.

It is simply a matter of choice. We would prefer to splice graft the trunk just where the top is expected to form, especially if it has made a nice straight growth. The Talman makes a fine healthy stock, and should form a good trunk for carrying the top.

Kettles for Cooking Lime and Sulphur.

1284. SIR,—What kettles ought I to use for cooking the lime, salt and sulphur wash.

A SUBSCRIBER.

If kettles are used I would prefer two fifty gallon kettles, as plenty of hot water should be always on hand, and two are almost necessary to economize time. A second lot may be commenced in one while the first is finishing, and, when the first is emptied into the barrel it can at once be filled with water for completing a second lot. Cooking by steam is no doubt much more economical, where practicable.

Burlington.

G. E. FISHER.

Crude Oil for Canker Worm.

1285. SIR,—Do you think spraying with crude oil, before the leaves open, would kill the eggs of the canker worm, now thick on the orchard trees.

A SUBSCRIBER.

Henry Clendenning or Manilla says he killed oyster shell bark louse eggs by spraying his apple trees with crude oil, immediately before the leaves appeared. The oil might kill the eggs of the canker worm but I have had no experience. The vitality of eggs is hard to destroy, but I think it well worth trying. I think I have succeeded in catching most of the canker worm moths in my orchard last fall with the sticky bandage.

Freeman, Ont.

GEO. E. FISHER.

Canker Worm.

1286. SIR,—The canker worm was bad in my Spy orchard last year, and the eggs are very abundant. How had I better treat them? Would crude petroleum kill the eggs? A SUBSCRIBER.

I have your letter of the 31st ult. I consider the best remedy for Canker worms is to band the trees in autumn and spring with bands of paper smeared with a mixture of castor oil and resin, as recommended in my reports. In spring as soon as the leaves expand the trees should be sprayed with poisoned Bordeaux mixture, using the regular formula recommended by us, namely, four pounds of copper sulphate, four pounds of fresh lime, four ounces of paris green and forty gallons of water.

J. FLETCHER,

Dominion Entomologist.

Export of Fruit.

1287. SIR,—Do you think it best for a shipper of fruit to England to deal with one commission house, or with a number of large "purveyors" or retailers?

What is the smallest amount of space to be obtained on board of ship in cold storage?

Does all fruit delivered at Liverpool have to be shipped via canal if for Manchester, or is railroad as cheap?

If you were one of a company expecting to trade as above, would you think it best to have a representative meet personally the commission firm to whom shipments are expected to be made? In other words, isn't it more satisfactory on both sides to come into personal touch at the start?

How many bushel boxes, or how many barrels can be packed in the smallest space a steamer will contract for in cold storage?

SUBSCRIBER AT ROCHESTER.

I think it far best that you should deal entirely with one first-class house, and grow into mutual confidence.

The amount of space you can get in cold storage depends upon the outfit of the steamer. The usual amount is about four carloads, or between 5000 and 6000 cubic feet, but sometimes these compartments are subdivided.

In shipping to Manchester, you can have the fruit forwarded either by rail or ship canal as you please; the latter is considered

cheapest. I think a personal interview at the outset might prevent a great many misunderstandings.—*The Editor.*

Cherry Aphis.

1288. SIR,—I propose to try the crude petroleum for cherry aphis. When should I apply it? Is it useful for any other purpose? A SUBSCRIBER.

In treating trees for aphis I think the treatment should be late, when here and there a blossom is open is the time. Crude oil is useful for many purposes. It is good to paint tools with to keep them from rusting. Whale oil soap applied very late has reduced aphis very much.

Freeman.

GEO. E. FISHER.

Ferns and Insects. (See question 1277).

SIR,—No doubt the insect destroying the foliage of the ferns belonging to Miss E. P. Battersey, is the fern thrip; an insect not easily got rid of. I thought that some might be glad to know the following receipt for destroying this insect; take one ordinary tea cup full of whale oil soap, dilute the same in a patent pailful of hot water, when cool, dip or spray the plants; this will kill the scale, green fly and red spider. Before using test a branch of your plants in it, for fear that it might be too strong. I use it on all plants, even on coleus.

Niagara Falls South.

R. CAMERON.

The Laburnum. (See question 1274).

SIR, I have no doubt that your answer as to the tree not being hardy in the province of Quebec is quite correct, but in the vicinity of Niagara Falls it grows and blooms beautifully. This tree is better planted in the shade, in a heavy loam, well drained.

Niagara Falls South.

R. CAMERON.

OPEN LETTERS.

Apple Boxes.

SIR,—In the January number of your valuable journal, page 35, Mr. N. J. Brandrith, Secretary B. C. F. G. Association, writes regarding apple boxes, suggesting uniformity.

This question is of importance throughout the Pacific slope fruit growing region, and has attracted the attention of the fruit growers and handlers, as well as the box makers for some time.

At the meeting of the Northwest Fruit Growers' Association in Portland, Ore., in February, 1901, the matter was up for consideration during a part of two days, and after careful deliberation of a representative committee, of not only orchardists, but also commission men, railroad men, express men and box makers, they reported recommending two sizes, or rather two forms of boxes for apples, which report was unanimously adopted.

One box, the "Standard", to be 18 inches long, 11½ inches wide, and 10½ inches deep. Another the "Special" to be 20 inches long, 11 inches wide and 10 inches deep, all inside measure. It was recommended that end material be ¾ inches thick and the sides ¾ inches.

At the recent meeting of the Association, January 28th, 29th, 1902, at Walla Walla, Washington Ty., the matter was reviewed at length and the action of a year ago affirmed, to adopt and use these sized boxes. These boxes are destined to become the standard in the states of Oregon, Idaho and Washington, and as British Columbia is included in the territory covered by this Association, it should be the standard in that Province as well.

Hon. J. R. Anderson, Deputy Minister of Agriculture for B. C., is an active member of the N. W.

F. G. Association, and Vice-president for the B. C. Association, was present when the action was taken in 1901, and would, I have no doubt, render the B. C. F. G. Association valuable assistance in settling this troublesome question. I would advise Secretary Brandrith to put himself and the Association he represents into communication with Mr. Anderson, and use their best endeavors to bring about a uniformity in apple packages throughout all our territory. Hoping to see this accomplished.

Nampa, Idaho.

ROBERT MILLIKEN,

Sec'y Idaho Station Hort. Soc.

We cannot see the wisdom of recommending two sizes of apple boxes. Here is the great fault with our fruit packages, now that we have so many sizes, that no longer can we tell what we mean when we quote the price of box or basket? And when it comes to loading a car for distant shipment, how in the world can we pack to advantage, with so many different sizes? And again, when engaging space on the steamship in a cold storage compartment, how can we reckon how many cubic feet we need for, say one thousand packages of different sizes? If, on the other hand, a box is say 10½ x 11½ x 22 outside measurement, we can, allowing for

ventilating space, and count that each box will require two cubic feet of space.

We in Ontario have thought this matter out so closely that we are trying to bring all cases for all fruits to one exterior size, and trying to fit the smaller interior boxes to fit. To do this we may possibly have to vary the standard exterior a little from the apple box, but we would certainly hail such a case with great satisfaction, and we are trying to work out the problem this very season.



FIG. 2315.

Two Rare Plants.

SIR,—I enclose you a photograph showing two rare plants, the one to the left with the palm-like leaves is *Begonia luxurans*; the plant looks very unlike a begonia in growth and flower; it produces flat panicles of pure white flowers in summer. The plant is very decorative on account of its beautiful foliage.

The plant to the right is a shrubby variety of the *Eupatorium*, producing very large terminal corymbs of purple flowers during winter. The leaves are large ovate, height three feet, a native of Mexico. This is a very useful winter flowering greenhouse plant, that should be better known. The flowers are larger in panicle, and the florets individual, in form and color of flowers very like a large *Ageratum*.

Niagara Falls South.

R. CAMERON.

Prize for Hardy Plants.

SIR,—I have noticed for some years in the Toronto Industrial Exhibition prize list, a prize offered for the best collection of hardy plants, including fancy foliage or ornamental foliage, cutspecimens. Now, Mr. Editor, anyone familiar with the subject will know that this will include trees, shrubs and hardy perennials, cultivated and uncultivated, comprising hundreds of specimens all correctly labeled, and only five dollars is offered as a prize. In my estimation five dollars is little enough for each division, let alone the whole three.

Every year there is a large sum of money offered in prizes for collections of tropical plants. Now I find no fault with tropical plants, they are useful and educative; but how much more important is it to cultivate a taste for hardy plants suitable to our own climate, and what better place to show these plants and cultivate that taste than at the Industrial Exhibition?

From the interest shown by the public at Farmer's Institute and Horticultural meetings, it would seem as if they wished to become better acquainted with such stock. Nurserymen will tell us that they cannot sell such plants, but from my experience it would seem that they are mistaken, if the numerous questions that are asked of me regarding where such stock can be got, how to care for it, etc., count for anything.

I hope that the attention of the directors of the Industrial Exhibition may be drawn to the above subject, and that it may meet with their approval, and that they will see fit to make the desired changes. Fostering a love for such plants means beautifying our homes and our province, linking therewith health, wealth and contentment.

Niagara Falls South. RODERICK CAMERON.

The Lime Washes.

SIR,—In the April number of the Canadian Horticulturist Mr. Jeremiah S. Clark, of Bayview, P. E. I., wished to know if there was any difference between the lime, sulphur and salt mixture recommended by Mr. Geo. E. Fisher and the lime and salt mixture recommended by myself. The reply stated that the wash recommended by me was simply to retard bloom. I write to correct this, as for more than two years I have advocated its use for the eradication of oyster shell bark louse, and as recently as in the February number of the Horticulturist, which was referred to by Mr. Clark. This wash has given great satisfaction when used as directed, and I believe it to be the best known remedy for the oyster shell bark louse.

Its effects on the San Jose Scale have not been satisfactory, however. In December, 1900, with the assistance of Mr. Geo. E. Fisher, some experiments were tried at Niagara, but it apparently had no injurious effect on the San Jose scale. The mixture used at that time was made with lime, salt, milk and water. The lime, salt and sulphur mixture as now recommended by Mr. Fisher has evidently given good satisfaction.

Yours truly,

W. T. MACOUN,
Horticulturist.

The Canadian Fruit at the Glasgow Exhibition, from an English Fruitman's Point of View.

SIR,—I have perused in your admirable issue of January with very great interest, the report of Mr. R. Hamilton, and I am sure you will join with me and my English confreres in wishing that our Canadian cousins will get at the real truth about the fruit exhibits, so that in their trade with this country, they may not be led astray.

I have the honor to be associated with the only paper, I think, which takes up the fruit question altogether from its commercial standpoint in this country, and moreover we are not of that number who would exclude the importations of fruit, etc., in order that our home growers may keep the field. We rather welcome all good fruit that comes, especially that from Canada, and advise our home growers to go in for newer methods of cultivation. For years we have been advising them to restrict the number of varieties, especially of apples, and grow only 6 to 8 varieties suited to the market requirements. On reading the report of your correspondent I was inclined to hold forth upon the grit and go of Canada, and I did so to my chief, and I think I cannot do better than give you just what we said.

I personally was unable to go to Glasgow during the time the Exhibition was on. Your correspondent speaks of the praise of the public. He must remember that the general public know little of fruit culture as we see it and they probably did

"Blaw in his lug a bit." My chief says: "My object in going there (to Glasgow) was to look at this Canadian Fruit Exhibit. I was not greatly impressed, in fact it struck me as rather a slow show, although a fine exhibit in many respects. There was some excellent bottled stuff from Canada and in matters agricultural a fine display was made, but speaking generally of the apple show, a few sorts of apples were good but there were such a thundering lot of sorts that one was bewildered. If they could have reduced the very large number of sorts to about 6 or 7 and have covered a table 5 or 6 feet square with them they would in my opinion have made some impression. I thought you would like to know this." Regarding your notes as to packages, I quite agree with Hamilton that the barrel is doomed, and we understand that a package, which we strongly recommend Canadian senders to adopt is gradually being adopted with best fruit, i. e., a small case containing about 40 pounds of fruit. The Australian and Tasmanian shippers especially have taken our advantage to heart and have adopted our form of package generally."

Such, Mr. Editor, is the outcome of the Glasgow Exhibit as seen by practical fruit-growing eyes, and by one who is strenuously advocating all things that can tend to bring good cheap fruit to the millions in the old country, and by one who at the same time as strenuously strives to get these things done to the advantage of the grower and fruit salesmen.

W. F. EMPTAGE.

OUR AFFILIATED SOCIETIES.

Kincardine.—Mr. Welsh, the President, occupied the chair in his usual manner. After his introductory remarks the H. S. students, or a number of them, gave two of their excellent selections, a drill and chorus, "Coon, Coon, Coon." As our readers know, the meetings and entertainment were held under the auspices of the Ontario Fruit Growers' Association conjointly with the Kincardine Horticultural Society, and the best speakers of course were procured. The first to appear upon the platform was Mrs. Torrance of Chateaugay, Quebec. She gave an excellent address on "Every day plants of our homes and gardens." She started out by giving some practical suggestions in beautifying our school grounds and streets. She very sensibly recommended the planting of nut trees along with our beautiful maples. For the sake of effect and to imitate nature she said we should not plant trees in rows and one just opposite another in our lawns and parks, etc. She admired the barberry of which there were fifty-two varieties. She then explained the cultivation of such shrubs and plants as the spirea, hydrangea, catalpas, etc. Her remarks on the perennials were full of interest from first to last. The home, she said, was the foundation of the nation. We should beautify it. Men and women should assist each other in making the

home the happiest place on earth. "There is no place like home, be it ever so humble." The speaker dwelt upon the necessity of harmony in colors, the same as in dress. A score or more of plants were named in decorating the yards and lawns. Biennials also were discussed, among them being the pea and veronica. The chairman requested anyone in the audience to ask the speaker some question, and failing in this he gave his experience in growing walnut trees on his farm, which was interesting.

At this stage of the meeting sixteen young women (H. S. students) dressed in white, made their appearance on the platform and rendered in grand style the old southern melody, Rock-alow. The mandolin accompaniment was very fine, the operator being behind the curtain.

The chairman then introduced the next speaker, Mr. E. B. Stevenson, M. A. of Jordan Station, Ont. His subject, "Strawberry culture and the promising new varieties," was taken up after a smart little talk about "Bulb growing." He had had a talk with the young folk in the afternoon in the same place and was warmed up. His remarks were not only timely but appreciated by his large audience. He reckoned the Kincardine Horticultural Society was booming, when such large crowds would come to hear talks about Horticulture. He

dilated upon the benefit of being a member of the Society.

His talk on strawberry culture was very interesting. Men have made from \$200 to \$1000 from one acre. The eyes of the small boys opened and their mouths watered as he told about the large strawberries—as large as snow apples—that had to be sliced to be eaten. In fact he said they were too large to go into the boys' mouths. If the speaker had a plot of ground he would have it half in strawberries. The H. S. Zobo band gave a selection in fine style which was applauded.

The Society may feel grateful for having such first-class officers. There are 116 good members and "there's more to follow."

Mitchell.—On the 17th of March we held our second annual Horticultural Society meeting in the Town Hall. Like its predecessor of the year before it proved a large, select and enthusiastic gathering. The hall was crowded to the doors, and when Mrs. Torrance rose to speak she said that she had never before seen so many prominent, and would-be prominent citizens on the platform. This alluded first to the fact that all the clergymen and other prominent citizens occupied seats on the platform, and secondly to the fact that the front of the platform was crowded with boys who had been driven from their seats on the floor of the hall by the immense crowd. The musical program was very choice, and the floral display furnished by Mr. C. E. Skinner of our local greenhouse, supplemented by some of the society members, was exceedingly pretty and inspiring.

Dr. Smith, the society president, first introduced the Secretary, who told in a few words what the society had done so far, and was likely to do for the current year. Besides the plant distribution last spring, \$50 worth of bulbs—tulips and hyacinths—has been distributed among the seventy-four members last fall, and in addition to the ordinary plant distribution this spring, one thousand gladioli, purchased from Mr. Groff of Simcoe, will be distributed among the members. This will still leave the government grant, about \$50, to be invested in bulbs for the fall.

Dr. Smith being called away, Mr. W. Elliot, B. A., vice-president, took the chair, and called upon Mrs. Torrance as the first speaker. She gave an instructive talk on shrubbing for the lawn, the best shrubs for the lawn, the system and methods of planting, and care after planting. The second speaker was Rev. R. S. Howard of Trinity Church, who gave a very inspiring address on the pleasures and influences of floral culture in and about the home. The third speaker was Mr. R. B. Stevenson, who talked first on verandah decoration, and then on the preparation of soil for pottery plants. So instructive was Mr. Stevenson that some of the audience asked him to talk for a few minutes on strawberry culture for the family table. It was nearly eleven o'clock when Mr. Stevenson sat down and the meeting was dismissed with the national anthem, led by Rev. A. McAuly of Knox Church, who, as well as Rev. Mr. Howard, Rev. Mr. Kenner and Rev. Mr. Whiting, is an enthusiastic member of the society.

OUR BOOK TABLE.

***SYLVAN ONTARIO.**—It is well that Educationists are considering Nature study as a means of developing habits of observation and discrimination, for there is abundant evidence that such training is needed. We do not expect city-bred people to be familiar with the various trees and shrubs adorning our rural landscape, yet we are fully persuaded that our country-bred are as little able to name correctly the different species of the trees mayhap growing on their own farms, to say nothing of the shrubs.

The appearance of this work at this time is very opportune. It is very creditable both to the enterprise and scholarship of the author. The very modest price places it within the reach of every one. It should be used in the public schools of city, town and country. It should be in every family where the boys and girls can learn to know the distinctive features of each tree and shrub, thus forming an intimacy with nature that will be a source of purest pleasure through all of life.

*Sylvan Ontario, a guide to our native trees and shrubs. By W. H. Muldrew, B. A., Dr. Paed., principal of the Gravenhurst High School. Illustrated with 131 leaf drawings. Toronto, Wm. Briggs, cloth limp 50 cents, cloth boards 75 cents, leather limp \$1.00.

The text opens with an exhaustive and simple explanation of the terms used in describing leaves in all of their varied forms and peculiarities. This is followed by a leaf index which enables the reader, now become familiar with the descriptive terms, to ascertain the botanical name and the number under which the plant is more fully described in succeeding pages. By the use of the leaf-index and the drawings, in which will be found a typical delineation of every form of leaf, it is a very simple and easy matter to become thoroughly acquainted with the botanical and the common names of all of our arborescent plants. The descriptions given are necessarily short, yet give valuable information concerning each of the two hundred and ten Ontario trees and shrubs.

307 Givens St, Toronto.

D. W. BEADLE.

COUNTRY LIFE IN AMERICA for April, if possible surpasses all previous numbers in general excellence. The illustrations are superb, and the reading matter elegant. Nothing equal to this journal has ever before appeared, and the price is reasonable, only \$3.00 a year. The publishers are Doubleday, Page & Co., 34 Union Square East, New York City.

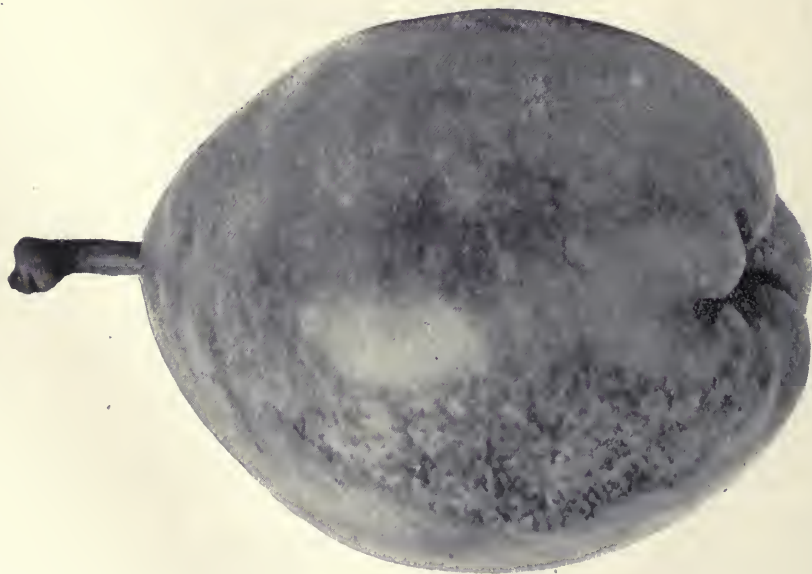


FIG. 2316. THE EASTER BEURRE.

THE CANADIAN HORTICULTURIST

Vol 25 1902 No 6

* * JUNE * *

THE EASTER BEURRE.

AMONG the desirable pears to grow for export we must not overlook the Easter Beurre, which, though green and unattractive in appearance at time of harvesting, keeps well through the winter, is an excellent shipper and is of very good quality. A warm climate and favorable soil seems to be necessary to its best development, and accordingly we find it a favorite shipping variety in the Californian pear orchards. On deep, rich, sandy loam, in the southern parts of our province, it succeeds well, either as a dwarf or as a standard tree; and it would no doubt be profitable in the commercial orchard.

Although some writers have claimed that this pear originated in France, because some old trees were found near Laval, yet the majority agree that the variety originated in Belgium, at the old University town of Louvain. Van Mons, in his *Album de Pomologie* in 1847, says, "This variety was found in the ancient garden of the Capucins, at Louvain, where the original tree still stood in the year 1825, under the name of Pastorale de Louvain."

In the old countries, much confusion has existed regarding the names of pears, and consequently much difficulty exists in the identification of varieties; this pear, for example, is given no less than twenty-four different names in Leroy's *Dictionnaire de Pomologie*, as for example, Doyenne de Printemps, Canning, Beurre d'Austerlitz, Beurre d'Hiver, etc., the last named being adopted by LeRoy, while Hogg, of England and Downing of America, both adopt the name so well known with us, Easter Beurre.

DESCRIPTION.

Tree, fairly vigorous, upright and productive, and may be grown either as a dwarf or as a standard; if as a standard it needs good rich soil and a warm climate for the best success. In Great Britain it does not seem to succeed as well as in Canada, for Hogg says it frequently happens that this delicious pear is of an indifferent and insipid flavor, which is caused by unfavorable soil, and Blackmore of Teddington says, "It cracks and spots and is seldom very good." Our experience with it, as grown at

Maplehurst on a dwarf tree, is very favorable.

Fruit, above medium size, irregular obovate; skin pale green at harvesting time, yellowing somewhat toward maturity, with numerous russet dots, russet patches around the stem and calyx and often a brownish check. Stem, about one inch long, stout, swollen at base, set in a narrow, deep cavity; calyx small, closed, set in a much

plaited basin of moderate depth. Flesh: color white, texture fine, melting and juicy; flavor, sweet and agreeable.

Season—January to May, under ordinary conditions.

Quality—Dessert, good.

Value—Export, good.

Adaptation—Southern parts of the province.

CHOICE VARIETIES OF GOOSEBERRIES.

BY STANLEY SPILLET, FRUIT STATION, NANTYRE.

The Question.—*What variety or varieties of gooseberries do you advise one to plant for profit?*

This question has been asked more frequently than any other and is difficult to answer, but, as I have had quite an experience along this line, I will give, in as few words as possible, the conclusions I have come to.

The gooseberry is not a popular fruit and I am satisfied this unfavorable opinion arose from the custom of canning or preserving it green, as we did ourselves years ago.

Nine people out of ten will tell you they have no use for gooseberries. I have asked a good many why they put up their gooseberries green any more than their plums, and the only reason given was "the skin of the fruit becomes tough and disagreeable if allowed to get ripe." This is true of a good many of the foreign varieties but not of our own native varieties.

Large vs. Small Berries.—Growers often say if they were able to grow the large berries they would have no trouble in finding a market. I am certain this is an error; people do not buy the gooseberry because it is small or large, cheap or dear, but because they fancy they do not like it; but I have

never met a man yet who said he had no use for the gooseberry preserved, but who, if he ate it or was induced to buy a basket of ripe fruit, quickly changed his mind.

Fifteen years ago I sold 20 twelve quart baskets ripe to neighbors, mostly farmers. Three baskets went to Lefroy, one to each store and one to hotel. Every year since, these same people want to get their basket of ripe gooseberries, and the hotel, noted for its good table, takes 3 or 4 baskets. Nearly all these people put in their order a year ahead, for fear they will miss getting them.

Now many of these have tried the large varieties, but, in every case, have pronounced in favor of the medium sized berries such as Downing, Pearl and Red Jacket. One gentleman said "the big berry is no better than the medium berry, and most of our family say not so good, so the only advantage with the big berry is that it can be cleaned a little more quickly." Our own experience is just the same. Year before last we kept all our large berries for our own use; last year we sold the large and used Pearl and Red Jacket, and in our opinion the smaller berry is the nicer.

Foreign Varieties.—Of the fifty varieties sent to this station from England, fully 40

per cent were smaller than Red Jacket and several were as small as Downing when grown on old black wood and among grass. These foreign berries have very thick skins, so thick that there is very little pulp. Old country people who visit my garden inform me that these small berries are used altogether in the old country for jam making; and that they never saw the large berries used for that purpose. I was therefore prepared to hear from Prof. Beach that the Downing has been introduced into England, and that it is highly prized there for jam making. The largest apples, plums or even strawberries are not always preferred for cooking but often the medium size is preferred if they are nice in color, shape and condition. Now, sir, if you are willing to do as Green of Rochester did, go right out and sell gooseberries direct to the consumer, peddle them if you like to call it so, I advise you to set say 1,000 Red Jacket and 800 Pearl for selling ripe and 500 Champion to sell green for sauce, pies, etc. This advice is of no use to the big grower who piles his fruit into the market. It does not make any difference to him which variety will continue in favor, but you must please your customers, therefore you must know the best quality and supply it.

Money in Them.—Let me say, if I had my life over again with my present experience, I should buy 5 to 10 acres of land within a mile or two of some village, so as to get manure which is the secret of success, and grow strawberries and gooseberries for home market. I began with strawberries as a hobby and the first year I had all I could do to sell \$60 worth! Stores took a couple of twenty-four quart crates the first year, farmers took from one to two dozen boxes; but the next year everybody wanted twice as many. I saw that there was a fine opening for someone, so I induced a smart honest laborer with a big family to take it up grad-

ually. He first raised plants and sold a few berries but was stuck for capital, he went into partnership with a young farmer and now they can sell the product of seven acres of strawberries on this little market! Well I know the gooseberry market cannot be expanded like that but I do know that almost every farmer in the township will buy gooseberries at five cents a quart and the working men in the villages will go in for this fruit for canning or preserving as soon as they learn its value. By this means one or two families in every township in Canada can be supported in comfort and independence. My own family uses a lot of fruit and to-day the gooseberry and plum are our favorites preserved, and I have no hesitation in saying that the gooseberry is ahead of the strawberry preserved.

Red Jacket.—I do not doubt that the big fruit grower can grow the big berries and find a more ready market for a time; but his customers will not be long in discovering what mine discovered, that the big berry cooked is no improvement in quality upon the medium sized berry, and any grower can afford to grow Red Jacket or Pearl for five cents a quart better than the big berries at 8 cents. Red Jacket when properly ripened is certainly the most beautiful berry I ever saw. It does not mildew and need not be sprayed, and is of a clean, bright, pinkish, transparent color. I had just one basket of this variety to spare last year and took it to the store where the campers deal. This was at the end of the season when all were apparently supplied, and the merchant had informed me that no more could be sold. Well this basket was noticed at once and bought up, and orders came in at once. I should just like to see one dozen baskets of well-grown Red Jackets exposed for sale in Toronto beside the biggest berries grown, and see which would sell the best.

NOTES AND COMMENTS.

Canker Worms are at work, and must be killed while small, with Paris green spray, three ounces to forty gallons of water; or with the Kedzie mixture described on page 184.

Codling Moth and Plum Curculio should be fought at once, and the same spray advised for Canker worms is useful if applied as soon as petals fall.

Borers are often very troublesome in an apple orchard that is not growing vigorously. There are two kinds, the Round Headed and the Flat Headed; and the latter is the more common in Ontario. The eggs are deposited in June and July, under the loose bark; and the young worm soon eats its way through the bark, and sometimes girdles a small tree completely. Washes of soft soap, reduced to the consistency of paint by the addition of a strong solution of washing soda in water applied once in June and in July, is a preventive. If the insect is already established, nothing will do but the knife.

The Peach Tree Borer, if neglected, increases in the orchard to such an extent that the trees may be almost ruined by its girdling them. The eggs are deposited on the bark just at the surface of the ground, in the summer season, and the young larva works its way downward, devouring the bark of the root, and causing an accumulation of gum, which often forms in a thick mass around the base of the tree, a sure guide to the presence of this borer. When once it is in the root, the only thing to do is to dig away the earth a little, and to search it out with a knife and destroy it. One of

the most convenient preventive measures is to heap fine earth about the trees early in June, and this will prevent the borer from reaching his chosen place for oviposition. Some years ago we had a hard fight with this insect, but routed it entirely in the way above described and have had no return of it since, worth mentioning.

Apple Scab, which has wintered on the bark and old leaves, is now sending out its young spores to fix themselves upon the new leaves and the young fruit. Spraying with the Bordeaux mixture, the preparation of which was described on page 103, March number, will largely prevent the scab from affecting the fruit, if it is kept well whitened with the mixture. Some kinds are especially subject and should be sprayed faithfully, viz: Fameuse, Fall Pippin and Early Harvest. Some other kinds, such as Baldwin, Ben Davis and Duchess, are seldom affected.

The Deutzia Lemoinei, sent out this spring to our members, is a valuable acquisition and when it blooms will be much appreciated by all. The bush is quite hardy, and reaches a height of about three feet; it is a very profuse bloomer, making it a very fine ornamental shrub. The flowers are pure white, with yellow stamens, larger and more showy than those of the well known but smaller and more tender variety *D. gracilis*. There are several other varieties, as *rosea*, *scabra*, *crenata*, but none so desirable for Ontario gardens as *Lemoinei*.

Oriental Markets for Fruit.—No one can foresee the unlimited extension of which the export trade in North American fruits is capable. The obstacles that have hitherto

hindered, will soon be so entirely overcome that we shall no longer see a glut of good fruit, no matter how excessive our crop ; for always some other part of the world will be eager to swallow up our surplus, providing it is accessible.

Our own great Northwest is opening up a vast market for our grapes, which are so unpopular in England, and likewise for our excellent plums, which can be grown along our lakes in such quantities. Germany, France, Russia and Austria, all want our fancy high colored apples ; Scotland and England want our fine pears ; and now even the Orient is beginning to ask for our apples. This latter statement is based upon the following report by United States Consul Miller, at Muchwang, China, concerning fifty boxes of apples sent from Portland, Oregon, on September 28th, 1901, and which reached China November 10th, in good shape, and every box arrived intact. The percentage of loss was greatest with the Red Russian variety (75 per cent), and least with the Ben Davis (2 per cent) ; the Spitzenberg lost 10 per cent, the Shannon Pippin 25 per cent, and the Jonathan 50 per cent. California ships a quantity of third-grade yellow Newtons to China.

"Some of these," says Mr. Miller, "are consumed by foreigners, but most of them go to the Chinese fruit stands and restaurants and are eaten by natives. The Chinese appetite for fresh fruit is strong, and apples are in great flavor ; the only obstacle to the creation of a large market is the inability of the masses to purchase. The average Chinaman does not distinguish the different varieties of apples, and if inferior grades could be sent at low rates an extensive outlet could be created.

"Northern routes are the best for shipping green fruits. All shipments of apples for the northern ports of China should be sent by Oct. 1, on account of the danger of freezing if they arrive late in the season.

If the fruit reaches North China in good condition, it will keep well on account of the dry, cold climate. The presence of the Russians in Vladivostock, Port Arthur and Dalny will increase the market for our apples, as the Russians like this fruit very much."

THINNING FRUIT.

If present appearances are at all indicative of the season's crop, there will be a phenomenal yield of almost every kind of fruit. Peach, apple, pear, cherry and plum trees, all seem to be competing to see which can make the best showing, and if one half the fruit were to hang until mature, our orchard trees would be exhausted for years to come. We therefore warn our readers to be on their guard against such an evil by thinning the fruit most carefully.

Effect on Peaches.—Experiments made at Maplehurst, during the last few years, have clearly proved that thinning of peaches very much increases the size of the fruit, gives it more color, largely increases the quality of No. 1 fruit, and in some cases increases the total number of baskets harvested. In some cases it was found to increase the net income in cash for the trees thinned, over those not thinned.

Effect on Plums.—Experiments made at the Wisconsin Experiment Station seem to prove that equally good results may be had from thinning plums, as we have had with peaches. About four-fifths of the fruit was removed from a portion of a tree of Gale Seedling plums, leaving the fruit about two inches apart on the branches, shown in Fig. 2317 ; while the other branches are left untouched. The increase in size is quite evident in our illustration, which is taken from a photograph.

Effect on Apples.—While the results in the case of apples may not be so clear as with peaches and plums, still the effect on the tree is no unimportant factor ; for when our



FIG. 2317. PLUMS THINNED AND UNTHINNED COMPARED.

orchard trees overbear, as they did in 1896, it takes three or four years for them to fully recover their vitality. Indeed, if one may judge from evidences, it is only this year of 1902, six years after that enormous exhausting crop, that our apple trees have recovered their wonted vigor!

The Massachusetts Station has reported on results of thinning apples, as follows:—

A tree each of Gravenstein and Tetofsky apples was thinned on July 1st, and a similar tree of each variety left unthinned as a check. In case of the Gravenstein, the yield on the thinned and unthinned trees, respectively, was first quality fruit, 9 bushels

and $2\frac{1}{2}$ bushels; second quality fruit, 1 bushel and $2\frac{1}{2}$ bushels; windfalls, $9\frac{1}{2}$ bushels and $10\frac{1}{2}$ bushels. In the case of Tetofsky the thinned trees gave 1 bushel of windfalls, and the unthinned tree 3 bushels; of second quality fruit, the yield was one-half bushel from each tree; and of first quality fruit the thinned tree yielded 2 bushels and the unthinned tree none at all. Allowing 60 cents per bushel for firsts and 25 cents per bushel for seconds, the market value of the thinned Gravenstein apples was over twice as much as that of the unthinned and of the thinned Tetofsky apples eleven times as much as that of the unthinned. It

cost 48 cents to thin the Gravenstein and 25 cents to thin the Tetofsky. The net gain due to thinning was 85 cents for the Tetofsky and \$1.85 for the Gravenstein. It is thought that the results would have been more pronounced if the thinning had been done two weeks earlier. The large percentage of windfalls in case of the Tetofsky was believed to be largely due to the fact that the apples have very short stems and are borne in clusters of from three to eight fruits each, so that as they grow they become very much crowded. With trees having this characteristic, therefore, thinning is especially valuable.

Absurd Statements.—The New York Fruit Trade Journal, after speaking of the superiority of American over Canadian fruit packing, is further responsible for publishing the following paragraph as part of a speech by Michael Simons, of Glasgow :

The question of selection or grading is also one of importance, even with honest packers. We say 'honest' packers, for it is regretful to say that there are men who are actually dishonest; and to such an extent did false packing obtain in the Dominion of Canada that the Legislature has thought fit to pass a special act making false packing a criminal offense, with special penalties, including the possibility of imprisonment attached to it.

There are various methods of resorting to this false packing in order to deceive the unwary. What is called stove-piping is supposed to be the most general, the *modus operandi* in connection with which is something as follows: A barrel is taken and the bottom of it layered with a few good apples put in in perfect regularity. A stove pipe, the circumference of which might be about half that of the barrel, is then introduced into it. Apples are then poured in round the stove pipe, reaching up to the chime. Then the inferior apples are poured into the hollow space in the stove pipe. When it is filled up, the pipe itself is removed, the result being that all the rubbish is in the center of the barrel, where it is difficult to observe it. The top, bottom and sides are comprised of good fruit. The packing is then completed in the usual way, a special press being used for the purpose, in order to insure the impossibility of movement, which at the outset we spoke of as the chief desideratum.

This statement is too absurd to contradict. We venture the assertion that Mr. Simons never saw an instance of such packing as is here described. If, as our con-

temporary infers, Canadian packing is inferior to American, how is it that Canadian Baldwins always bring a higher price in Liverpool than American Baldwins; and is not the fact of our passing a fruit inspection Act rather a proof of our intense desire to do honest work, than an evidence of our dishonesty? Such a paragraph is most unfair and unjust.

The Spring Frost.—Nearly every year, toward the end of May or early in June, we are alarmed at the serious danger to our fruit crop from frost, and very often we lose a large part of our cherries and strawberries in realization of our fears. This season our spring began early in March, and the fruit buds were unusually advanced the first week, 9th of May, when a period of cold came which lasted three days.

In the most favored sections, near the lake, the temperature was down to 30°, and in many places much colder. At first the usual peach scare prevailed in the Niagara district, but the damage is less than was anticipated. The petals of the cherries are frosted, but the young cherry, hidden and protected by them, is found to be quite uninjured; the strawberries which were formed are blackened and spoiled, but there are plenty still to come to make an average crop.

Injurious Degrees of Cold.—Hammon gives (1896), a table showing at what temperature plants are liable to receive injury from frosts, from which we cull the following as being those more interesting to us in Ontario :

Fruits.	In Bud.	In Blossom.	In Setting Fruit.
Apples	27°	29°	30°
Grapes	31	31	30
Peaches	29	30	30
Pears	28	29	29
Plums	30	31	31
Strawberries.....	28	28*	28

*In our experience, strawberries in blossom are injured at 30°, and we think in this particular he has given them more credit for hardiness than they deserve.

The Codling Moth is one of the worst enemies of the apple grower, and every year the percentage of wormy apples in untreated orchards is increasing. We have known instances where fully one-half of the crop was wormy and the affected apples were otherwise the finest of the fruit. Since only about thirty days elapses between the deposition of the egg and the appearance of the adult moth, it is evident that we have in Canada at least two broods in a single season, and farther south there are three and sometimes four.

Now a man with a small orchard will try and keep down this worm by poultry and stock, but for the large orchard, faithful spraying with Paris green (4 ounces to 50 gallons of water) is about the best treatment. It is an expensive job, and for this reason many neglect it and their orchards become breeding places of worms to ruin their neighbor's fruit. When neglect of spraying is general, the work of keeping one's own orchard clear is almost hopeless, but if the work be at all general, one may spray with the more confidence of success. The first spraying should be within a few days after the blossoms fall, and should be repeated several times at intervals of about a fortnight, if one is determined to succeed.



FIG. 2318. WORK OF THE CODLING MOTH.

Shelter For Strawberry Plantation.—

On page 126 some reference was made to the beneficial results to plants from night shelter, and now we notice in the April number of the *Southern Fruit Grower*, a record of excellent results from covering a strawberry plantation with thin muslin, from the time the berries begin forming until picking time. Protection of this kind was estimated to increase the crop fully fifty per cent., to largely increase their size and to make them earlier in ripening. Notwithstanding that the cloth hung limp and close over the blooms, yet pollenization was absolutely perfect, because the confined air, laden with pollen, reached every blossom.

Possibly this protection more nearly resembles nature's wild strawberry garden, where the vines have semi-protection from grass and wild plants, in fruiting season.

In fastening the cloth, stakes were used, projecting six inches above the ground, through the upper end of which a gimlet hole was bored, and a six inch piece of small soft wire run in, of which one end was twisted about the stake, and the other bent into a hook to hold the cloth, set one and one-half yards apart in rows less than three feet apart.

Canker Worm.—This is a troublesome enemy of the apple tree in some sections of Ontario, and if neglected, will quickly increase to such an alarming extent as to threaten the life of the trees. The first evidence of its work is the perforation of the leaves with small round holes, which gradually increase in size until nothing but skeletonized leaves remain, and the trees look as if scorched by fire.

These worms were very bad around Bur-



lington Bay and in the Niagara District last year, and seem to be gaining ground year by year, owing to neglect of proper remedies. One of the most reliable preventive measures is suggested by a study of the insect itself. The male moth is winged, but the female is not winged and therefore must climb the trunks of the trees to deposit its eggs.

Therefore a tree protector of some kind about the trunk will effectually prevent the eggs from being deposited upon the tree above it, or the worms from crawling up if hatched out below. Bands of heavy paper tightly fastened around the trunk and besmeared with some sticky substance, such as coal tar or printer's ink, will serve the same purpose. Some report using a mixture



FIG. 2319.
FEMALE MOTH
OF CANKER WORM.

of 3 pounds of resin to 2 pounds of castor oil, melted together and applied directly to the trunk of the tree. The writer tried sticky bands in his own orchard some years ago, and succeeded in completely routing the worm, hundreds of females

being caught fast trying to walk through a sticky bandage of coal tar. There are two species of Canker worms, *Anisopterix vernalis* (the spring canker worm) and *A. pom-etaria* (the fall canker worm) so that one must be vigilant both in spring and fall, and the bandages should be applied toward the end of October, and kept sticky until about the 1st of May.

The common remedy, spraying with Paris green at the rate of one pound to 150 gallons of water, is effective if applied while the worms are very young, but, if delayed until

the worms are even half grown, it is not very effective. A better remedy is the strong solution of white arsenic known as the Kedzie mixture, which was given on page 184 (May No.). Prof Kedzie used 2 lbs. white arsenic, 4 lbs. sal. soda and 2 gallons of water. This was boiled until the milky color disappeared, showing that the arsenic was dissolved. Then 1 pint of this was added to 40 gallons of water. The addition of 2 lbs. of lime to each barrel of this mixture made the arsenic solution insoluble and less apt to scald the foliage.

The Georgian Bay Fruit Growers' Association seems to be a most active and enterprising society. That they mean business is evident from the work undertaken, which may be classed under such heads as, co-operative buying of baskets; pumps and material for spraying; uniformity in methods of cultivation, pruning and packing; co-operative shipment and sale of fruit. At Montreal a special forwarding agent for the Georgian Bay packages of fruit is retained during the shipping season, who will report the condition the fruit arrives in Montreal, the manner in which it is handled and placed on shipboard. The secretary is Mr. Fred. Marsh, whose ambition is to make the Georgian Bay brand hold the top place in the market.

Spraying Demonstrations.—Actions speak louder than words, even in horticulture, and the man who can do a thing as well as tell about the doing, is the man who is needed these days. Secretary Creelman writes that he has engaged Messrs. McNeill, Carey and Lick for spraying demonstration meetings to be conducted in connection with the local fruit growers' associations in the various parts of the province.



FIG 2320. LUTHER BURBANK.

MEN WHO HAVE SUCCEEDED—III.

LUTHER BURBANK.

The Wizard of Horticulture—Wonderful Results of Hybridization.

"If little labor, little are our gains;
Man's fortunes are according to his pains."

For some years past the name of Luther Burbank, of Santa Rosa, California, has been familiar to fruit growers the continent over, but it was only recently that we have been able to trace anything about the person behind the name, when Prof. Wickson, of California, in a monthly journal called "The Sunset," gave us a beautiful sketch of "The Man, His Methods, and His Achievements."

Our young readers, who wish to become horticultural experts, can study no biography that will be more suggestive of useful enterprise than that of our subject, for his work has been one of real and honest effort to do and be, rather than to get and seem to be.

There is no line of scientific and at the same time practical horticultural effort that brings greater good to fruit growers than that of hybridization, and the production of new and valuable fruits, and yet how few of our horticulturists have the patience needed to pursue this work. The celebrated M. P. Wilder, of Boston, is said to have always carried with him a pair of nippers and a camel's hair pencil, and a piece of netting, and his great pleasure was to nip out the stamens of the flowers of one fruit, and with his camel's hair brush touch the pistil with the pollen dust from another. Then he would tie the fertilized bloom in the netting to prevent insects bringing other pollen, and wait patiently for the time when he could plant

the resulting seeds, and so originate some new and valuable hybrid. This work takes years, it does not always pay in hard cash, but it brings more lasting reward to him who thus works in the interests of his fellows.

Luther Burbank was a Massachusetts boy, born in 1849, with no especial chances of success. He was slight of build, retiring in disposition, but even as a child he showed a love for plants by making a doll of a cactus plant, and grieving deeply over its loss. At school he lacked confidence enough to speak before his comrades, but he was gifted in composition, and succeeded in making a bargain with his teacher to accept essays in place of declamations.

It was while reading an agricultural paper that he noticed the need of an improved variety of potato, and set himself the task of producing it. His efforts were successful and he gave the world the Burbank. Concluding that California offered him a good opening to carry on the plant and seed business, which he had taken up, he removed there in 1875, with little stock in trade except ten Burbank potatoes, which he had reserved when he sold out the stock to a Massachusetts seedsman, and these helped to give him business standing in the new country.

After some ten or twelve years Mr. Burbank found that his time was too much divided, and that he must concentrate his whole time upon his chosen life work, the production of new varieties, and in 1893 he published the first of that notable series

of announcements, which he called "New Creations in Fruits and Flowers," and which has interested so many people in his wonderful productions.

The Burbank home is very humble, less pretentious even than his greenhouse or barn adjoining. Here, on four acres of ground, most of his work is done, an example truly of intensive culture. The beds of plants about the house are collections for working purposes; in one of them, for example, there are forty varieties of golden rod, set there for the express purpose of studying their habits of growth and of bloom.

Santa Rosa is a town of about nine thousand inhabitants, and here Mr. Burbank has lived during a decade of years with his aged mother. The home is small, and there are no attempts at display of any kind, no special show plants, no

laboratory, no medals or diplomas, no special library, and yet this man is widely read, he is abreast of the times, indeed in his own work he is in advance of any books.

Modest worth certainly is one of his characteristics, and so rare is this trait, that we look upon such a man with surprise and find it hard to understand how he can place the doing before the reward, and forget the dollar in the effort to bring about some great and good result of his labor. But such a man is Mr. Luther Burbank, and the work he is doing is of such scientific and expensive character that most persons would at once seek the aid of the state or of some millionaire; but he, in carrying it forward, has asked no favor, he loves his work, and the reward comes in the doing.

A Boys' Institute.—Quite a new departure in the education of boys has been made by Mr. C. J. Atkinson, Supt. of the Broadview Boys' Institute, Toronto. This gentleman has a class of city boys, a number of whom have signified their intention of becoming farmers. He has secured a plot of land and is giving each boy a portion of it upon which to set different plants this year, each one for himself. In consultation with Mr. C. C. James, the following programme of lectures has been drawn up:

Agriculture and Nature Study, Lecture Course, Season 1902—

1. May 5—Introductory, G. C. Creelman, Ontario Dept. Agriculture.
2. May 12—"How to Make a Vegetable Garden," John Barton, Weston.
3. May 19—"How to Make a Flower Garden," Wm. Tyrrell, Toronto, Pres. Horticultural Society.
4. May 26—"Seeds and Seedlings," Prof. Lochhead, Guelph, Ontario Agricultural College.
5. June 2—"Relation of Plants to Soil and Air," C. C. James, Toronto, Deputy Minister of Agriculture.
6. June 9—"Insect Life," W. N. Hutt, Southend.
7. June 16—"Our Birds," C. W. Nash, Toronto, 108 Waverly Road.
8. June 23—"Poultry," Poultry Manager Dentonia Park Farm.

June 28—"Poultry," Poultry Manager Dentonia Park Farm.

9. Aug. 4—"Nature Study in Parks and Gardens," Principal Scott, Normal School, Toronto.

10. Aug. 18—"A Tree," Thos. Southworth, Division of Forestry, Toronto.

11. Sept. 1—"Farm Animals," J. B. Ketchen, Director of Dentonia Park Farm.

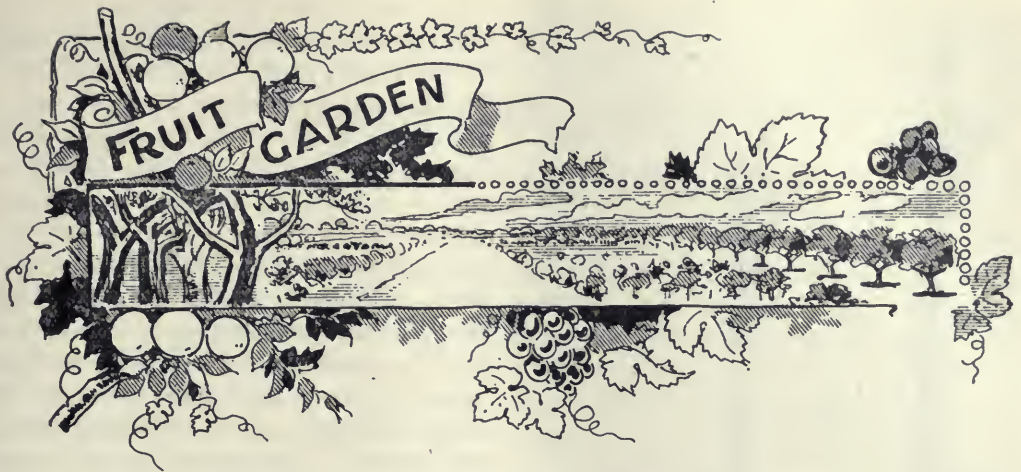
Sept. 6—"Farm Animals" at Dentonia Park Farm, J. B. Ketchen, Director of Dentonia Park Farm.

12. Sept. 15—"Flowers and Fruits," L. Woolverton, Grimsby, Editor "Canadian Horticulturist."

This institute is interdenominational and has Lord Strathcona as Hon. President. It includes many departments of work, classed under four divisions, viz.: Mental, physical, spiritual and social, and will surely be a source of great inspiration to boys who are choosing their life work.

The first of the series of lectures has been given by Secretary Creelman. It was quite an inspiration to see the eagerness of the boys, who listened for over an hour and a half as Mr. Creelman told of the making of the soil, and of the wonders of insect life.

We will watch with interest the carrying out of Mr. Atkinson's scheme and wish him every success in his work.



SOME PECULIARITIES OF FRUIT SPURS.

BY H. L. HUTT, PROFESSOR OF HORTICULTURE, O. A. C., GUELPH.

In the last two articles I dealt at some length with those forms of branches commonly known as fruit spurs. The importance of a thorough understanding of these, and the many erroneous ideas concerning them, is my excuse for again reverting to the subject. Only last week I received a letter from a correspondent who has been observing some of these for years, which shows something of the general lack of knowledge concerning such things, not only by men who care for trees, but by those who are expected to give information to others about them. In the course of his letter, he says:

"Five years ago I noticed, when pruning the Ben Davis apple trees, a small knot or bunch on the branches. Now it is spreading all through the Ben Davis trees. I send by this mail a sample of the knots. A question concerning them was asked at our last Farmers' Institute meeting, but could not be answered. I pruned 20 young Ben Davis trees last week, and, if this disease keeps on spreading, I think the trees should be destroyed."

I was, of course, pleased to inform him that such drastic measures were unnecessary, as this was not a disease, but a natural result of the fruiting of the tree.

The accompanying illustration, which is about three-quarters of the natural size, is made from a photograph of some of the knots in question. At the beginning, we may say that the swellings are more noticeable in the Ben Davis than in most other varieties of apples, although they are often quite common in pears.

They were at one time supposed to be something of the nature of a reservoir for the storing up of nourishment for the development of the fruit, but careful investigation has shown that this is not the cause. Prof. Bailey, in his *Pruning Book*, says: "They are swellings resulting from the strain of fruit bearing, and are not to be looked upon as conducing in any way to subsequent fruitfulness." A little study of the annual growth in fig. 2321 shows the correctness of this theory, and may help to a better understanding of the formation of such branches. Beginning



FIG. 2321. BEN DAVIS FRUIT SPURS.

at the end of the branch, we see about one inch of last year's growth, and it has at its extremity a good plump fruit-bud which will blossom this spring; and, if all goes well, should bear fruit. There is, as yet, however, no such swelling upon it as that which appears on the growth of 1900 just below it. In 1900 there was only a little over half an inch of growth, but at (a) is a large scar showing where an apple was borne that year; and, as a result, we see the large swelling of the spur at that point. In 1899 an unusually long shoot was produced, but this may be partly accounted for by the fact that the branch did nothing else that year, as there

is no sign of there having been fruit. In 1898 there was only about an inch added to the length of the spur, but that year it had a good sized apple, as shown by the large scar at (b); and here again is another swelling. In 1897 the branch not only bore fruit, but it made very little new growth, which may be seen by the short piece between the swellings above and below. 1896 was another fruitful year, and the spur then terminating at (c), made an effort to bear two apples, but, for some cause or other, they failed to reach maturity, as shown by the two small scars at that point. They must, however, have reached a considerable size, as evidenced by the swelling of the spur below them. Below the ring at the base of this lower swelling we see the long growth of wood made in the year 1895.

The small shoot terminating at (d) has been six years in making its inch or more of growth, as may be seen by counting its rings. It has been outgrown by its more vigorous neighbor, and will after a time cease growth unless an accident should happen to the main branch, which would check growth in that direction. About three years ago it made an effort to bear fruit, but its effort was in vain, as the little scar at (c) shows that it could have done little more than blossom.

To summarize, we have in this small branch seven seasons of growth; the bearing has been in alternate years; four attempts have been made at fruiting, two of which have been successful, and two have failed; and at the end of the branch is a well-developed fruit-bud which promises well for fruiting this season. At each point where fruit has been borne, there is an enlargement of the part due to the addition of woody material, no doubt for the purpose of strengthening the spur to support the weight of the fruit.

ORCHARD CULTIVATION.

BY W. H. COARD, L. L. D., DEPARTMENT OF AGRICULTURE, OTTAWA.

It has been only within the last ten years or so that spraying has been regarded as an important part of successful fruit culture. Recognizing the value of anything that would prevent injury to trees and fruit, spraying has received considerable attention at the Central Experimental Farm, and many fungicides and insecticides have been tested to prove their relative merits. While experimenting with a lime mixture sprayed on fruit trees to prevent the swelling of the buds in early spring, Mr. W. T. Macoun discovered that the trees thus treated were practically rid of the oyster shell bark louse, an insect which does a great deal of injury to apple trees in the colder parts of Ontario and the Province of Quebec. The lime destroys the gelatinous matter which binds the scales to the tree, and the scales are then removed by the action of rain, frost, or wind.

In order to be most effective the spraying should be done in the autumn, and there should be two applications so that all the scales may be covered. Lime used in the proportion of two pounds to one gallon of water has been found to be the best formula so far, but it is possible that one pound of lime to a gallon will be sufficient if the lime be good. This new remedy for the oyster shell bark louse is simple, cheap, and very effective, and should prove a popular one. There is, in fact, no remedy so good, economical, and unfailing as this for the oyster shell bark louse.

Kerosene emulsion has been usually used for this purpose, and with good success when the insects are running, but as

they only run four or five days in the first week in June it is difficult to kill them all off in this way. By covering the trees with lime you are able to get at the scale, and the lime makes the trees white, so that you can see whether all the scales have been covered or not.

The advantage of clover growing in an orchard in the fall is that much of the plant food in the soil, which has been liberated and made more easily available by the constant cultivation during the early part of the summer, is prevented from leaching by being used by the growing plants, the clover thus becoming a "catch crop" as well as a cover crop. Where soils suffer from lack of moisture in a dry time, the clover should be plowed under as early in the spring as the land can be worked, and cultivation should be begun at once. This will conserve much of the moisture which would otherwise be transpired through the leaves of the growing plants until they are plowed under towards the end of May, which is the usual time. If the soil, however, always contains plenty of moisture, it would be better to let the clover grow until about the third week of May, as there would be additional humus and nitrogen obtained by this method.

Many orchards have been neglected so long and have reached such an age that it would not be profitable to attempt to renovate them. The best plan in such cases is to plant young trees. On the other hand, there are many orchards where the trees, if cared for, would be in the prime of life, and neglect is the only cause which prevents profitable crops

from being grown. It is of orchards such as these that a few suggestions are here offered as to how to bring them back into good condition. But the results desired cannot be got in one year.

The trees, to begin with, should be pruned, not too heavily at first, but enough limbs should be taken out to open up the top and permit a free circulation of air and the admission of sunlight to it. The trees will, probably, be much moss-grown, and both they and the fruit may be affected with various diseases. Injurious insects, too, are almost certain to abound.

Spraying should be begun early in the season, and the trees should be kept covered from top to bottom with Bordeaux mixture and Paris green until the fruit is almost fully grown. Scraping the trunks and large branches of the trees may be done if there is much moss, but as soon as the tree becomes more vigorous, and air and sunlight are admitted, much of the moss will disappear. If the oyster shell bark louse, or other scale insects infest the trees, they should be sprayed with the lime mixture, or other materials already mentioned.

As the orchard, if neglected, is almost certain to be in sod, the soil should be plowed shallow in the spring, turning under a good dressing of manure if it can be procured. If the sod is not too thick it might be worked up with the disc or be kept thoroughly harrowed until July, working in other fertilizers if the land be poor and manure is not to be had; and then red clover seed sown at the rate of twelve pounds per acre, and the ground rolled. A good cover crop should then be formed by autumn. This would conclude the first season's work. The results would, probably, be a greatly increased vigor in the trees, and the fruit, though, perhaps not plentiful, would be cleaner.

The second season additional but less pruning should be done, the trees kept sprayed as before, the clover plowed under in the spring, and the land kept harrowed or cultivated until July, and then seeded down to clover. The fruit should be better than the year before; but not until the third year should the trees be expected to bear heavily and the orchard be in good condition.

A PLEA FOR OUR HAWKS AND OWLS.

BY W. N. HUTT, SOUTHBEND, ONT.

John Bunyan, the immortal dreamer, pictured the life of man as a continuous warfare. Perhaps to no class of men is this more applicable than to the modern Canadian horticulturist. The orchardist, the gardener, the florist, with engines of destruction, have just been hurling deadly tonics into the atmosphere, and now are laying mines for unseen foes and preparing for the devastating hordes of the future.

The husbandman of the soil seems to be at war with all nature. Or is it nature? Is it natural that the codling moth should destroy all our apples, the tent caterpillar strip all our orchards, or the potato beetle ruin all our potatoes? In a special degree, can it be natural that a pernicious scale should threaten our whole fruit industry, or a destructive fly drive our staple product from the market. It may be harsh, yet it is natural, quite natural. Na-

ture intended that the insect should live on the plant and the bird upon the insect, the fungus upon the green leaf and the parasite on the host-plant. She grants immunity to the apple tree growing in Canadian forests and to the potato struggling for life in the wilds of Virginia, but she refuses to protect forests of fruit trees or extended plantations of potatoes. By extensive planting of any one species of vegetation we disarrange nature's equilibrium and against odds we must maintain the balance ourselves. By adding acre to acre of any crop we increase the feeding ground of insects that live upon that crop, and of course they increase accordingly. But the question consequently arises, Why do birds not maintain the balance of nature and protect our gardens and orchards? They would do so if allowed, but sadly reduced in numbers they are quite unable for the task. Our native birds of late years are becoming alarmingly scarce. Decimated by the gun of the bird collector, driven out by the English sparrow, and robbed by the thoughtless small boy, birds are now scarcely a factor in the problem of crop protection. One is forcibly reminded of the fact at this time, in seeing birds returning from the south. Where are our old friends, the lovely blue bird, the old-fashioned phoebe, and the once ubiquitous barn swallow? We deplore their depleted numbers, and must ourselves do their work of destroying noxious insects and protecting our crops.

There are, however, worse injuries to trees than having their foliage eaten off or their fruit injured. Mice may in a few days in winter so girdle trees that they are completely ruined. Spraying, if carefully persisted in, will control insect pests, but over rodents working under winter snows we have little or no power. This

spring, from Essex to Ottawa, complaints are heard of great destruction to trees by mice. Thousands of nursery trees have been destroyed, hundreds of orchards partially or totally ruined, and even vineyards are reported as suffering. This too is a very natural result of a natural cause. Our rapacious birds, the hawks and owls, which live chiefly on mice and other rodents, have become quite scarce. Hawks are not nearly as common as formerly, while owls are scarcely found except in museum cases. In suffering from this plague of mice, the orchardist is paying for the destruction of our rapacious birds. It seems almost a waste of time to take good care of an orchard in summer only to have it girdled and destroyed in winter. We would not by any means disparage spraying, or other means of protecting trees, but it seems that it would be wise to give more attention to the cause of the trouble.

By accurate examinations of their stomach contents, it has been found that rapacious birds are most useful, in spite of some small birds killed or an occasional chicken taken. Instead of running for a gun when a hawk or owl is seen, it should be protected in every way. It is deplorable that when a flock of northern snowy owls visit our shores it should be pursued till all are turned into bird mummies. The most practical thing that could be done for horticulture is the jealous protection of all birds, and particularly those of rapacious habits. Our boys should be taught their great value, and shown that during resting season birds should never be molested. If hunting were done with camera instead of with gun, the pleasure and profit of the chase would be increased, and the whole country would rejoice at the decrease of injurious pests and the increase of native birds.

RECLAIMING A BARREN ORCHARD.

Cultivation and Spraying Effect a Most Wonderful Improvement.

People ask if there is any help for the old orchard. The problem of the renovation may or may not be a simple one. The mere statement of the conditions of an orchard would seem to suggest the solution. Still there may be local causes for unfruitfulness that may not be apparent. Perhaps the conditions may be such that renovation is impracticable. These questions have to be taken into account.

A simple story of experience may have its lesson. In my possession are several small apple orchards, aggregating twenty acres. The soil varies from a light drifting sand to a somewhat heavy clay. The lighter sand is leachy and the clay is tough and cloddy. A small part of these orchards had been pruned, sprayed, tilled, and fertilized in an experimental way for several years, with very satisfactory results. Another part, before it came into my possession, had been used for hay, pasture, and various farm crops. Farm manures had sometimes been used, and the soil—a moist, sandy loam—was considered to be fairly good. The trees had received little if any pruning, and they were very thick and bore many dead branches. Although most of the trees were twenty-eight years old, the largest crop on the three acres in this plot previous to the adoption of the improved methods was about thirty bushels, mostly culls. The larger part of these orchards was covered with grass and weeds, and while in this condition many trees had been killed by being girdled by mice. No manure had been applied since the two were set. It was supposed that the barrenness of the

orchards was due mainly to the impoverished soil.

In the spring of 1894, these orchards for the first time were all brought under a uniform system of treatment, which has continued until the present time. The trees have received moderate annual pruning, and the heads have been retained as low as possible, merely training high enough to permit the teams to pass under the limbs, the ends of the pendant branches being cut back to the desired height. Trees have also been removed when found to be encroaching on those neighbors which were designed to remain permanently, and spraying mixtures have been applied to keep the insects and fungous diseases under control. The spraying is done just before the flowers open and twice after they fall, and the material used is Bordeaux mixture and Paris green. The soil has been shallowly plowed, and well fitted as early in the season as conditions would permit, and it has been thoroughly tilled until midsummer for the purpose of conserving the moisture.

Cover crops have been sown, although not always with satisfactory results. The simple statement of the bare outline of these practices may make a little impression on the reader, but they are nevertheless the fundamental means of bringing old orchards into profitable condition.

Feed them by improving the soil.

Keep them healthy.

Prune.

Save the moisture.

Add humus to the soil by means of cover crops.

Then wait.

In the beginning mineral fertilizers were used on all the orchards, except certain rows which were reserved as checks—for experimental purposes—in that part of the orchard that had never been manured. As the expected benefits from the use of these fertilizers did not appear they were gradually abandoned except on certain rows near the check rows, upon which the use of the fertilizers has been continued up to the present time for experiment.

The results of this fertilizer experiment have thus far been entirely negative, and it has been valuable chiefly in emphasizing the importance of certain other factors in the renovation of these orchards. It is shown conclusively that the mineral elements were not deficient in this soil, and if they were not formerly available it was probably due to the poor soil-conditions, and to a lack of a regular and abundant supply of moisture. Improved soil conditions and the increased supply of moisture have rendered these elements more available, and the healthy leafage—due largely to spraying—enabled the tree to make profitable use of them.

The greatly increased vigor and fruitfulness of these orchards, continued through a term of years, furnish very convincing evidence of the value of these methods—good tillage, cover crops, pruning, spray-

ing. While it may be possible under other conditions to pursue quite a different course with favorable results, yet the objects to be attained must be essentially the same under all circumstances. The tree itself must be protected from its enemies, and food and moisture must be abundant and available, the leafage must have sufficient exposure to sunlight, and the fruit must be protected from parasitic injury.

Perhaps no better testimony in regard to the results can be presented than a statement of the actual amount of fruit produced during the six years, beginning with 1895, the year following the adoption of these methods, and including three "bearing" and three "off" years. The total amount of fruit sold during that time was 35,672 bushels—an average of nearly 6,000 bushels per year—the smallest crop being about 3,000 bushels. Of the total amount 78.5 per cent., or 9,337 barrels, was classed and sold as No. 1 fruit.

Further evidence of the effectiveness and value of these methods is found in the fact that the farmers of the vicinity have almost without exception adopted them, and are practising them more or less thoroughly, with a very marked increase in the health and productiveness of their orchards.—Willis T. Mann, in *Country Life in America*.

W. H. BUNTING, St. Catharines, writes to the Sun :

The cherry crop is somewhat in doubt; trees blossomed well, and it is thought that the very early and late blooming sorts will show fair crops, while midsummer kinds are seriously injured by the frost.

Peaches and plums are in somewhat the same condition, some varieties in some localities having escaped injury, while in other cases the damage is quite serious, more especially with regard to the Japan plums and the yellow fleshed peaches of the Crawford type.

The opening buds of the grape were in some cases cut off to the extent of 50 per cent, but as the season is early it is probable that beyond reducing the crop to a moderate degree, unless further injury from rot or mildew follows, there will be a fair crop of this valuable fruit. The area under grape culture is rapidly increasing.

It is a little early to speak with any degree of assurance regarding the apple and pear crops, but present indications point to a large production of these standard fruits.

SPRAYING DEMONSTRATION.



FIG. 2322. SPRAYING DEMONSTRATION BY G. E. FISHER, AT GRIMSBY.

Mr. George F. Fisher, Provincial Inspector of the San Jose scale, has his hands full in explaining to fruit growers the best methods of treatment. In an interview on the 30th April he said the scale was rapidly spreading, and it was evident it had come to stay. At first it had been said that the scale could not endure our climate, but it was breeding faster in Canadian orchards than in those farther south, perhaps because the predaceous insects which were able to keep it in check were less hardy than the scale.

Individual Work, Mr. Fisher says, is the only hope for the fruit grower, for there are always a few careless men who will neglect their orchards, and no law can compel such men to do thorough work.

What shall we do with our big orchards of large apple trees when the scale gets into them?

It will be no light task, said Mr. Fisher, should scale once appear in them as it is sure to do sooner or later. You will have to construct a high frame work on your wagon, with a platform for one man to reach the tops of the trees while another works

from beneath. Every tree will have to be treated annually, before the foliage appears in the spring, and it will be a very considerable expense. Mr. McCardle, of St. Catharines, says spraying will cost him \$400 to \$500 this spring, treating his peach orchards for the destruction of San Jose scale.

It is the aim of the Department of Agriculture to encourage those who are willing to help themselves in ridding their orchards of this dreadful plague. My aim is to put every man in a position to care for his own orchard, so in time the industrious man will prosper, while the careless fruit grower must "go to the wall."

Are township inspectors compelling treatment?

They have the power to do so, if the township backs them up in such a course. Saltfleet Township Council has appointed fifteen inspectors, who are already at work. Only yesterday I visited them, furnished them with hand glasses and gave them full instructions. They mean business. I have done the same with the two inspectors appointed by the Township of Grimsby. I am advis-



FIG. 2323. MAKING FISH OIL EMULSION AND BOILING LIME, SULPHUR AND SALT MIXTURE, AT ST. CATHARINES.


ing the inspectors to keep a record of every orchard inspected, showing the number of trees of each fruit, the number treated, the results, etc., so that we may work the more intelligently in future.

Crude Petroleum will kill not only cherry aphids but also the larvæ from all overwintered eggs as well as insects that have wintered alive on the tree. I am now using a crude petroleum emulsion which is good, and it may be applied with an ordinary pump, although a good agitator is desirable. I have used such an emulsion, made mechanically with the pump, with good results on peaches.

This crude oil emulsion is prepared as follows: Crude petroleum 2 gallons, whale oil soap (dissolved) 5 pounds, boiling water $1\frac{1}{2}$ gallons. Churn violently 5 minutes, then more slowly, adding water to make 10 gallons.

This will contain $\frac{1}{2}$ pound soap to the gallon of mixture and 20 per cent. crude oil; it costs about two-thirds the cost of fish oil emulsion, or 4 cents per gallon. This quantity of soap seems necessary to emulsify the crude oil and hold it, and also to lessen the severity of the oil treatment. The emulsion may be diluted more or less and thus vary the strength.

ORCHARD TILLAGE.

T nearly every Farmers' Institute and Fruit Growers' Meeting held this season the most prominent topic seems to be Tillage of the Soil.

Some years ago it was Commercial Fertilizers. A year or two ago it was Cover Crops, and then when these questions were well understood by the cultivators of the soil, the itinerant professor turns the attention of his farmer students to the importance of physical conditions, and the conservation of soil moisture by tillage. When such valuable instruction is being given free of charge in such a popular and interesting fashion, surely no farmer can afford to miss a single visit of these instructors. Certainly the man who does not attend will soon find himself far behind in the intelligent cultivation of his farm or orchard crops.

An excellent resume of the subjects referred to was given lately by Mr. G. H. Powell in a recent number of the *American Agriculturist* as follows:

High intensive tillage has the result of making plants grow better. The first object of Tillage is to make soil fine, so that plants

can grow into it. The next object I wish to lay down, that we till primarily to make land rich. The principal elements of food that plants use are potash and phosphoric acid. Every acre of soil, I judge, in New England, has from 5,000 to 40,000 pounds of this in the first foot of soil over an acre of ground. This store is wisely locked up so that it is not easily extracted, and if it wasn't some enterprising Yankee would be getting it to sell. It is not how to buy commercial fertilizers, but first how to utilize the stores of plant food already in the soil. Talk about the New England soil, all it wants is stirring up. I judge if most of the abandoned farms were properly stirred up they would show an astonishingly large amount of plant food. Our fruit crops suffer more from lack of moisture than lack of good plant food.


Advantage of Weeds.—If it had not been for weeds we would not have learned about tillage. Soil is made up of mineral matter and of vegetable matter. A piece of new land is rich in vegetable matter. A cover crop for an orchard is simply a plant that stays upon the ground until you plow the ground the following spring. First I want to define the fundamental object. The most extensive element of plant food is nitrogen. It is soluble and dissolves quickly.

The greatest loss of this element occurs in winter unless there is something to take it up and then be turned under in the spring.

Cover Crop.—One of the dangers of winterkilling through the insufficient ripening or hardening down of buds is overcome through the use of a cover crop. Fruit buds are tender when growth continues too late in the fall. The whole of the fall ought to be used in hardening down. One of the best ways to accomplish this is to put in a crop on the ground that will grow and take up the available plant food and thereby stop down the fruit trees so they will harden down. Another object of the cover crop is to dry out the moisture in the spring. By a cover crop you can plow from one to two weeks earlier in the spring on this account. It is a mistake to allow the cover crops to go too long in the spring before plowing under and to remove too much moisture from soil.

A cover crop adds vegetable matter to the soil and replaces the matter burned out year by year by culture. One of the advantages of the cover crop is to make the soil spongy so that it will hold moisture. The ideal time of sowing cover crops depends on the season, but should be about the time the trees cease their growth. Some allow the cover crop to grow in spring, and if it is crimson clover, to do so till it comes into bloom. I believe that this is wrong. The best growth we can get on a orchard is in the spring. Two weeks in early May are worth more than six weeks later. The cover crop should not be allowed to absorb too much from the soil in the spring, and early plowing is best for early growth of the orchard. Crimson clover, cowpeas or other crops that have the power of gathering nitrogen from the air make good cover crops. Turnips, rye, oats and others do not.

NEW IDEAS IN STRAWBERRY GROWING.

 OUR friend, Mr. R. M. Kellogg, of Three Rivers, Michigan, was to have given us a full text copy of his address before the New York State Fruit Growers at Rochester last January. His ideas were so radical that we asked him to allow us to publish them in full. Since, however, the manuscript has not yet come to hand, we will substitute a report of his address which appeared in the Michigan Farmer.

Fifty years ago the stockmen stood just where we horticulturists stand now. Individuality counted for nothing. All they wanted to know was the pedigree. An animal might be ever so much deformed and a perfect runt, but if it was of a pure breed, they said they could feed and house it to develop its good qualities. The case is different now. They want to know the skill of the breeder as well as the description of the animal's ancestry, and above all they want individual perfection. We talk continually of varieties. Any old thing of a plant will do if it is of the right variety. We have lost

sight entirely of the individuals composing the variety. Is it not true that they are all the same? They are constantly changing. The life of a strawberry plant is only for two or three years. Its vascular system cannot be changed and moulded into perfect development in so short a time. It often requires years of time to do it.

We do want **new seedlings** with constitutional vigor and a vascular system which manufacture larger berries and impart to them a brighter color and firmer texture, but we want also to know how to maintain their ability to continue this heavy fruitage. I quite agree with Prof. Bailey when he says: "We need not so much varieties with new names as we do a general increase in productiveness and efficiency of the types we already possess."

No one should question for a moment that soil, location and treatment are potent factors in fruit growing. Varieties of plants are like races of men. Change the Hottentot to the land of the Eskimo and he is a failure. A born merchant fails as a farmer. One man is happy in a hovel, while another

craves the environments of a palace. One man has the knack of pleasing a particular plant and it succeeds under his treatment, while it fails with another grower.

Let me give you my **plan of propagating plants**, one which I have practiced with the greatest care since 1884. I always propagate from ideal bearing plants. First, they must be grown under the best natural conditions, usually in hills, and have special care; be kept under restriction and protected during the winter by careful mulching. No one should think of growing plants for a propagating bed in the field with those to be fruited. Our field plants are always set in the spring, and while tillage is going on a careful watch is kept for any specimens which may show superior qualities to their fellows. Where this is marked we place a numbered stake by it and make a scale card, noting its foliage, vigor and freedom from fungi, size of its crown, disposition to throw out runners, and in the fall whether it has well developed fruit buds. In the spring those showing the highest scale are selected for restriction, and as soon as blossom buds appear, about one-half are carefully removed and the balance allowed to bloom and set fruit. This is done to prevent weakness through excessive pollination. When fruit is set all the berries are removed except two or three on each stem, and as the growth proceeds, size, color and firmness are noted, and when all have ripened we finish the scale and can then determine which plant has the best physical organism. Special care is then given it, and its new runners are rooted and transferred to a special bed, where they are allowed to make runners for next spring's planting. Thus, every year we discard those plants making undesirable changes, and give our care to those only which are physically able to respond to generous treatment. The next year selections are again made, and thus all bad variations are discarded every year and only the strong well-balanced plants absorb my labor and occupy my land.

Another reason why plants should be grown in a special bed is, that the runners should be layered so they will root early and become well matured both in root and bud. They must not be thrown around in a bunch, but each must have plenty of

room with leaves fully exposed to sunshine or they will not be perfect.

The old wide matted row must go.—The cultivator throws the runners around in clusters, crowding the leaves together so the sun can only shine on the edges. The plant should always have room for each leaf to lay flat in order that it may have the full benefit of the sun's rays. No plant should be allowed to play the role of a weed and encroach upon others. The ideal way is to grow them in a hedge, making the rows from 30 to 36 inches apart, according to vigor of growth, and setting the plants about 30 inches apart in the row, and layering the runners so the new plants will stand eight to ten inches apart, and after that the new runners are cut with the rolling disk and finished by hand. If the physical condition of the plant is what it should be, when you check vine growth by cutting a runner, it will at once proceed to build up a new crown and fruit buds with added roots, but if it is weak in fruit bearing it will proceed to throw out new runners.

Berries grown in this way are always large, of an even size, bright in color and rich in flavor. The yield will be larger than if grown in any other way unless the land is too poor to grow berries at all. This system permits maintaining the loose earth mulch over all the ground with the cultivator. We give frequent tillage until we have copious fall rains and during the drought our plants are always irrigated, but if land is not especially favorable for irrigation I would not spend large sums of money in elevating water, but would depend on the loose earth mulch.

A strawberry grower must be something of a general. He must plan his work through a series of years, and must not only breed his plants right, but he will, by a system of rotation of crops, bring the soil into perfect condition for setting the plants. He must see his farm in imagination just as it will appear years hence and always work to a definite plan. He must discipline his men as well as himself to do every part of his work deftly and without a false motion. I drill my men like soldiers and often form an awkward squad of the inexperienced ones. The men learn to set the plants at one time and with three movements, and do it exactly right, and handle a hoe as

skillfully as a mason shoves his trowel. In other words only expert cultivators touch the handles of our harrows or lift a line. My berry pickers were taught how to pick a berry and put it into the box without injuring it.

When you come to recommend varieties of strawberries there are so many that will do well in one particular locality and not well in another that it is exceedingly difficult to do. The best you can do is to experiment; try Senator Dunlap. I have fruited it every year for five years. Then we have the Clyde, which is very popular on some soils, but fails on others. If you haven't got strong, rich soil, that will enable it to do its heavy work, don't set it. Strange to say, I never had the Dunlap. I have the Clyde and many others. One of my very choicest is the Brandywine. It does much better with me than Bubach (No. 5), and a great deal better than the

Rough Rider, for which such great claims were made a couple of years ago. For canning we like the Brandywine just as well as our old canning favorite, the Wilson. Clyde and Brandywine undoubtedly require strong soil; but it may be said that the majority of strawberries will do well under high culture—that is, on strong, heavily manured soils. Manure and cultivation are the things that make big strawberries and big crops. For ordinary soils and treatment I would recommend Haverland, Wilson, Warfield, Splendid. Haverland often gives an immense yield of fairly good and fair-sized berries under somewhat indifferent treatment, but as a pistillate or imperfect-flowering variety it must have some other sort, like Splendid, Wilson, etc., planted close by or in mixed rows, in order to insure free fruit-setting. Experiment will show which do best in your locality.



FIG. 2324. EAST CENTRAL FRUIT STATION.

East Central Fruit Station. This testing station is situated near Whitby, and is in charge of Mr. R. L. Huggard. At this place we have planted nearly every variety of pear known in Canada, and in time we hope for most valuable reports of their value. Mr. Huggard sends a view of his place and says:

The photograph was taken from the west,

which shows part of the north orchard, with a row of spruce planted 25 years, many of them over 30 feet high. The roof of the house and of the barn is almost hidden. This place was all commons 27 years ago, and now many of our trees are 25 to 30 feet high. We are making syrup from the sap of some of the maples shown in the picture.

APPLES AND THEIR ENEMIES.

How to Spray and What to Spray.

BY W. N. CARD, LL.D., DEPARTMENT OF AGRICULTURE, OTTAWA.



THE demand for Canadian apples of good quality and in good condition is an ever-increasing one, and in Great Britain the market appears to be unlimited, while the prospects for opening and continuing an extensive trade with other European countries are equally promising. Canadian fruit growers, packers and shippers are exhorted to see that the fruit that is exported is well and honestly packed, and that it is of such a quality that the demand shall not only equal our most sanguine expectations, but more than fulfil the desire of the most hopeful growers. In advocating the strictest regard to the requirements of the foreign market the Department is not sacrificing legitimate home markets ; because if the produce be equal to the necessities of the European consumers it must of necessity be all that the home consumer can desire. In this way the advocacy of perfection catches two birds in one trap.

The apple grower is anxious to get the most out of his orchards, but sometimes circumstances combine to thwart his well-intentioned efforts, and to help him out of his difficulties this article is issued. The Department thus takes a hand in fighting some of his deadliest foes, in case he is willing to wield the cudgels provided for his succor.

There are four kinds of insect enemies against whom the apple-grower has to fight. There are those which devour the foliage, those which bore in the wood, those which occur in the bark, and those which attack the fruit. But all insects fall within two classes, which can be separated by the

nature of the mouth parts. In the intelligent use of remedies a consideration of this point is of the utmost importance. In the class of biting insects, which have jaws with which they consume the substance of their food, such as caterpillars, all that is necessary is to place on the food plant some poisonous material which will be eaten with the food. For sucking insects, which instead of jaws have a beak or hollow tube with which they suck up their food in the liquid form, such as the plant louse, something must be used which will kill by mere contact with their bodies. For borers in the wood, which cannot be reached by those remedies, preventive measures may be taken by which the plants are rendered distasteful to the mature insects when seeking a suitable place in which to lay their eggs. For this purpose various alkaline or strong smelling deterrent washes may be used.

It cannot be too forcibly emphasized that the operation of "spraying" does not mean sprinkling or showering. "Spraying" means applying liquids by means of a force pump and spraying nozzle with such force as to break up the liquid so thoroughly that it falls upon the plants treated as an actual mist or spray. Unless you carefully spray and not sprinkle you cannot get an even distribution of liquids, therefore you cannot get the best results.

The remedies are numbered for easy reference and to avoid confusion.

1. Kerosene Emulsion.—Dissolve half a pound of whale oil soap in one gallon of rain water by boiling ; take from fire, and while

hot turn in two gallons of kerosene (coal oil) and churn briskly for five minutes. Before using add nine parts of water.

2. Paris Green.—One pound of Paris green, one pound of fresh lime, and add 200 gallons of water.

For dry application, take one pound of Paris green, with 5 pounds of flour, land plaster, slaked lime, or any perfectly dry powder.

3. Whale Oil Soap.—For young insects (scale) use one pound in 5 gallons of water. For aphids use one pound in 8 gallons of water. For San Jose scale in winter use 2 pounds in one gallon of water.

4. Tobacco and Soap Wash.—For plant lice or aphids, soak in hot water for a few hours 10 pounds of tobacco leaves (home-grown will do), strain off and add 2 pounds of whale oil soap. Stir until all is dissolved and dilute to 40 gallons. Apply early and two or three times at short intervals.

5. Alkaline Wash.—For Borers. Reduce soft soap to the consistency of thick paint by the addition of a strong solution of washing soda in water. If applied with a brush during the morning of a warm day, this will dry in a few hours and form a tenacious coating not easily dissolved by rain.

5. Poisoned Bordeaux Mixture for Fungi and Insects on Fruit Trees.—Dissolve 4 pounds of copper sulphate (bluestone) by suspending it inside a wooden or earthen vessel containing 4 or 5 gallons of water. Slake 4 pounds of fresh lime in another vessel. If the lime, when slaked is lumpy it should be strained through course sacking or a fine sieve. Pour the copper sulphate solution into a barrel, or it may be dissolved in this in the first place; half fill the barrel with water, add the slaked lime, and 4 ounces of Paris green, fill the barrel with water and stir thoroughly. It is then ready for use. Stock solutions of dissolved copper sulphate and of lime may be prepared and kept in

separate covered barrels throughout the spraying season. The quantities of bluestone, lime and water should be carefully noted.

7. Copper Sulphate Solution.—This is prepared by dissolving one pound of bluestone in 25 gallons of water. As soon as dissolved it is ready for use, but must be used only before the buds open.

The worst enemies of the apple tree, attacking the foliage, are the eye-spotted bud-moth, which can be destroyed by spraying early with a strong Paris green wash consisting of one pound each of Paris green and fresh lime, in 100 gallons of water; the Cigar Case-bearer, the Pistol Case-bearer and Leaf Rollers, all of which can be destroyed by the same means.

Destroy tent caterpillars by spraying the trees with poisons as given in either number 2 or 6 directly the young caterpillars are noticed. All tents should also be cut off and destroyed early before the leaves hide them

Green fruit worms should be treated to number 6.

Cankerworm can be destroyed with 2 or 6 as soon as the caterpillars appear.

The apple aphids can be destroyed with 3 or 4.

The insects attacking the wood are principally the flat-headed borer and the round-headed borer, and the best remedy for both is a regular treatment every June just before the time the eggs are usually laid, with deterrent washes such as number 5, or the same with crude carbolic acid added in the proportion of one pint to four gallons of the wash, to be applied with a large brush to the bark of the tree trunks and larger limbs. When a tree is infested, the presence of the grub may be detected by the borings which it pushes out of its burrows and by the sunken discolored appearance of the bark. By cutting through the bark the

grub can be destroyed. If it has penetrated into the wood it can be killed with a piece of stout pliable wire.

For the oyster-shell bark-louse use 1 or 3.

There are several other kinds of scale insects which occur upon the apple which may be treated in the same way as the oyster-shell bark-louse.

The woolly aphis is seldom a serious pest in the East, but it is very troublesome in British Columbia. The best remedies are to spray the colonies of these white downy lice on the branches and trunks with kerosene emulsion or a wash made with one pound of whale-oil soap in five gallons of water. For the root colonies remove the surface soil to a depth of six inches for a foot or two around the trunk and dig in tobaccodust or refuse from a tobacco factory.

The codling moth is the parent of the destructive apple worm so well known to all growers and consumers of apples throughout the world. In eastern Canada there is only one regular brood of the insect; but west of Toronto there are two broods, the latter of which is by far the more destructive. When there is only one brood spray with 2 or 6 three or four times in the spring, beginning immediately after the flowers have fallen, at intervals of ten days. That is all that is required. Where there are two broods, band the trees in autumn with strips of burlap, whisps of hay or any "tree protector."

Number 6 will destroy, also, many other enemies which feed on the foliage, such as cankerworms, tent caterpillars, leaf-rollers and the like.

Spraying is useless for the apple maggot. The remedy most to be relied on is the prompt destruction of windfalls so as to prevent the maggots going into the ground. This can best be done by keeping a sufficient number of pigs, sheep or other stock in the orchard. The penning up of poultry beneath infested trees has been found a most useful practice.

The San Jose scale is the most difficult insect to eradicate that the fruit growers have to contend against, and active experiments are still going on to discover a remedy for this pest. Up to now the two treatments our experts have found to give the best results are the spraying of trees in winter, or before the buds burst, with a solution consisting of two pounds of whale-oil soap in one gallon of water, or with 25 to 30 per cent application of crude petroleum and water.

These are facts which are of the utmost importance to apple growers at this season, and are the ascertained results of years of patient study, research and experiment on the part of Dr. James Fletcher, the Entomologist, Mr. W. T. Macoun, the Horticulturist, and Mr. Frank T. Shutt, M. A., Chemist, at the Central Experimental Farm Ottawa, and other parts of the Dominion.

FRUIT CROP REPORT.

Damage by Frost—Replies from Various Sections.

A. E. SHERRINGTON, Walkerton.—"At the present time, May 16th, the prospects are good; everything is full of bloom but very little out yet. Very little damage from frost, although we had twelve degrees of it, on the night of the 10th. My apricot was

in full bloom, still it is apparently setting considerable fruit."

R. L. HAGGARD, Whitby, May 16th.—"Frost did no injury to fruit so far, as blossoms were not developed, except apricots, which were in bloom and are some-

what damaged. If blossoms count for anything, there will be a great abundance of fruit, as almost every tree is full of buds and the bloom is just beginning to develop. Grapes are very backward, as the land is cold and growth slow. The foliage is coming out slowly. The weather is chilly, just about at the freezing point every night."

S. D. WILLARD, Geneva, N. Y.—"There is now no doubt that quantities of the early fruits have been destroyed by the frost. It is unprecedented in the history of this section. Nothing like it has visited this section at this time of the year within my memory."

GENEVA EXPERIMENT STATION, N. Y.—"In the frosts of the two nights it is estimated that in the region of Geneva and vicinity the loss will reach the enormous sum of three-quarters of a million dollars. This territory, being more extensive in fruit growing, except grapes, than any other fruit district of the State, the loss will be felt most seriously."

W. W. HILLBORN, Leamington.—"We have had little or no injury from frost. May 16th I examined the strawberry blossoms and failed to find any injured by frost. The frost was so light that it could be seen only in very few places. The prospect is good for a large crop of cherries, peaches, apples and pears. Plums light; most varieties had such a heavy crop last season that no blossom buds appear this spring. Small fruits promise a large yield, but the acreage is light."

W. W. BUNTING, St. Catharines.—"I think it would be immature to give any estimate of the damage by frost for a few days. The impression is that grapes are cut about fifty per cent, Crawford peaches

almost destroyed, other fruits less seriously injured. On the whole, outside of tomatoes, Japan plums and yellow peaches, other fruits will probably make up loss in better quality."

G. C. CASTON, Craighurst, (May 19).—"Frost seems to have done very little damage here, so far as I am able to judge. Owing to the previous cold weather, things were not far enough advanced. A few early varieties have suffered to some extent. Prospects for fruits of all kinds were never better."

W. H. DEMPSEY, Trenton (May 21).—"Apples not injured. Pears slightly damaged. Plums and apricots were caught in full bloom, and damaged. All small fruits that were in bloom badly injured, and in many cases the foliage killed back. Walnuts and butternuts killed back and forcing new buds. All fruits are blooming heavily and are out about eight days later than last year."

HAROLD JONES, Maitland.—"The strawberry crop in this section will likely prove less than one half an average. All advanced bloom was injured by the frost of May 10th and only a small percentage of late bloom to follow. Other small fruits and the smaller tree fruits such as plums, cherries, etc., are not grown to any extent. These fruits have suffered to some extent but there is enough bloom left to give a scattered crop. The apple crop is the staple for this section and I am glad to report the injury by frost as light. The center blossom in many clusters have suffered but there is an abundance left to give a good crop. The general condition of the orchards is all that could be desired, where mice did not injure them, and insects have been held in check by continued cool weather."



ROSE PESTS.

BY W. HUNT, SUPT. GREENHOUSES, O. A. C., GUELPH.

WITH the advent of June blossoms, and the increasing heat of the sun, insect pests are sure to make their appearance. The old adage "that an ounce of prevention is better than a pound of cure" is one that flower lovers will do well to bear in mind, and apply practically its teaching at this season of the year.

Much of the success to be attained during the summer season both in the flower and fruit garden, depends very largely on prompt and vigorous action in preventing the development and increase of the many kinds of insect pests that prove so troublesome and destructive in our gardens. Too often the application of remedies and preventive measures for the extermination of insect pests, etc., is left until the plants have become so badly infested that they are hopelessly spoiled for floral or decorative purposes for the greater part of the season.

How often do we see rose bushes with the foliage and buds partly eaten and destroyed by the rose-worm or slug, long before the buds have had time to develop even the faintest tinge of the gorgeous colors of

their beautiful petals, when an early and timely application of a little dry hellebore powder, sprinkled over the bushes before the flower buds developed, would have prevented the disfiguration of the plants as well as the loss of the roses. I have found it a wise course to always give rose bushes a sprinkle of hellebore powder as soon as the foliage has partially developed, before the flower buds are showing very prominently. By doing this and repeating the operation about once a week, until the flower buds commence to open out into flower, the foliage as well as the flower buds can be saved from disfiguration and partial ruin. The best time to apply the hellebore is early in the morning, whilst the foliage is damp with dew.

Take again the rose-thrip, that is so troublesome to rose-growers from the time the rose buds appear until early autumn. This insidious little white fly or midge, that secretes itself on the under side of the leaves, is oftentimes not detected until the foliage has become bleached and whitened by its destructive attacks. Its presence, however, can usually be detected if a close

inspection of the foliage is made soon after the first leaves appear on the bushes. At this time the insects are so minute that it requires careful search before they can be seen. This is the proper time, however, to commence the application of insecticides, as if left until later, when hot, dry weather prevails, it is almost impossible to eradicate them from the bushes.

An application of tobacco in some form or other is the best and safest preventive of the development and increase of the rose-thrip. I have found that an application of dry powdered tobacco leaf or dust, sprinkled once or twice on the bushes as soon as growth commences in early spring, and the operation repeated once a week until the flower buds are developing, has proved very successful in preventing the appearance of these troublesome pests of the rose grower.

A rather strong solution of tobacco water, made by pouring boiling water on tobacco, especially the raw leaves or stems, is a good preventive for the rose thrip. This solution should also be applied early in the season and at intervals as before recommended. There are several preparations specially prepared as insecticides that are very useful to the rose-grower. Most of these preparations are largely composed of the essence of tobacco and are perhaps easier to obtain than raw tobacco. Nicotinic acid and Sulpho-Tobacco soap may be mentioned as amongst some of the best preparations of the kind. It should be remembered however that one application early in the season does more good than perhaps three or four will do later on when the insects have become well established and numerous. A weak solution, made by dissolving about a teaspoonful of whale oil soap in two quarts of water, will prove of great service in preventing the ravages of the rose thrip. The solution should be applied with a syringe or wisk to the underneath part of the foliage as much as possible.

Another enemy to the successful culture of the rose, is the red spider. Climbing roses are more liable to attacks from this little pest than are bush roses.

The red spider delights in a dry arid atmosphere, and roses that are trained near to, or perhaps close to, a wall or fence, offer splendid inducements for its attacks. These pests are also very minute and oftentimes hard to locate until they have done considerable mischief. The first intimation of their presence is the unhealthy, whitish appearance of the leaves, and finally the constant dropping of the dried, half-devoured leaves; unless they are stopped before they have reached this stage. Constant syringing and sprinkling with cold water is the best preventive of the appearance of red spider, as they cannot exist in a damp atmosphere. It is almost impossible to prevent the attacks of these little pests on climbing roses planted close against a house or wall having a south aspect. Those of our readers who have roses planted in such a position will do well to syringe or sprinkle their bushes with water well up to the time of flowering, and for the greater part of the summer after the flowering period, if they would have good healthy rose plants. An open, airy position suits roses the best. If planted against a wall or fence an east or north east aspect is by far the best for their successful culture. The aphid or small green fly is also troublesome to rose growers. Constant syringing, or an application of tobacco water, usually rids the bushes very effectually of these less destructive insects than thrip, red spider, or the rose slug.

Those having rose bushes or similar plants that are liable to attacks from insect pests will find by using the different insecticides early in the season that much time and labor can be saved, and much better results obtained from their plants than by leaving the application of remedies until the insects have obtained a strong hold on the plants.

CLEMATIS PANICULATA.

BY A. GILCHRIST, TORONTO JUNCTION.



FIG. 2325. CLEMATIS PANICULATA.

Photo furnished by A. Gilchrist.

I AM surprised to find that this creeper, is so little known throughout the country, and that there are comparatively few even in Toronto. The Clematis is undoubtedly the best hardy climber, suitable for our climate. Nothing adds so much to the beauty of the home surroundings as creepers, clinging to and festooning our walls and verandas. We have a very meagre list of climbers suitable for that purpose that will stand our climate.

Prof. L. H. Bailey, in his Cyclopedic of American Horticulture, describes it thus, "Clematis paniculata (white) introduced from Japan, has proved a wonderfully valuable acquisition in this country, and has already become exceedingly popular. It is of remarkably vigorous habit, often making a growth of twenty to twenty-five feet in a season. It seems thus far to be entirely free from disease, is delightfully fragrant, and so floriferous that the blossoms form a dense sheet of bloom and remain in full beauty for several weeks. The foliage is very thick

and heavy, making it very desirable for covering porches and arbors. But, according to Nicholson's Dictionary of Gardening, it has taken over one hundred years to become popular, for Nicholson says, "It was introduced from Japan in 1796". It is described as flowering in July and August, the description of the foliage differs somewhat from the Clematis paniculata, as we know it; with us it flowers in September and October. There seems to be some points here which Prof. Bailey has not yet cleared up. Every householder in the land should have this climber. Clematis paniculata stand in the same relation to climbers that Hydrangea paniculata does to shrubs, the best late flowering plants of their respective classes. I send you a photo of a plant which is four years planted. In looking at a distance you would imagine a fall of snow was resting on the green glabrous foliage, which makes it exceedingly attractive. Individual flowers measure about an inch across.



FIG. 2326. A CORNER IN A GARDEN.

THE WORLD BEAUTIFUL.



ENTRANCE TO A HOME.

Hamilton Spectator in a laudable effort to work out a placid civic improvement through the agency of the children, to whom numerous prizes of considerable value are to be given for well kept gardens; while Toronto is exerting herself to secure an island park that shall

do credit to the city. Doubtless the excellent address by Dr. Saunders, given in the Association Hall, on the 15th of April last, has gone a long way in enthusing Hamilton citizens in the judicious planting of trees and shrubs for the embellishment of their town. The City of Cleveland, Ohio, has set a notable example of the possibilities of a movement such as that undertaken by our Hamilton friends, and, when the results are worked out, we are promised a collection of amateur photographs which we will engrave for our readers. In the meantime we give some of the Cleveland views, showing how well this, that was at one time called "The Forest City," is now becoming famous as "The City of Flowers."

WE seem to be entering upon quite a new era of landscape art, and our leading cities are being stirred up as never before. The Hamilton Horticultural Society and the City Improvement Society have joined hands with the Ham-



FIG. 2327. A BEAUTIFUL APPROACH.

Prizes for Gardens.*

—There, as in Hamilton, it was a daily newspaper, *The Leader*, that conducted the contest, inviting the Home Gardening Association to award the prizes. Sixty dollars was offered for the best amateur flower garden, \$30.00 for the



second best, \$25.00 for the best amateur porch or window box, and \$10.00 for the second best. This was a contest among adults, but a similar crusade was started among the children by the offer of a series of prizes for boys and girls not over fifteen years of age by Judge Dellenbaugh. He offered eighty



FIG. 2328. VISTAS IN HOME GROUNDS.

prizes, and thousands of children went to work making gardens. The Home Gardening Association distributed, principally through the teachers of the public schools, thousands of packages of seeds, a prize being given for each variety.

Results.—The effect was marvellous. Back yards that had been receptacles for rubbish became places of beauty, and front yards decorated with flowers needed no fences for protection, so universal was the public appreciation of them. Even strangers were impressed and went away saying "How many lovely homes there are in Cleveland."

Now let us hope for similar results in all our Canadian towns and cities.

*Credit for the illustrations, Figs. 2326 to 2328, 2330 and 2331 is due to *Home and Flowers*, a Cleveland Journal.

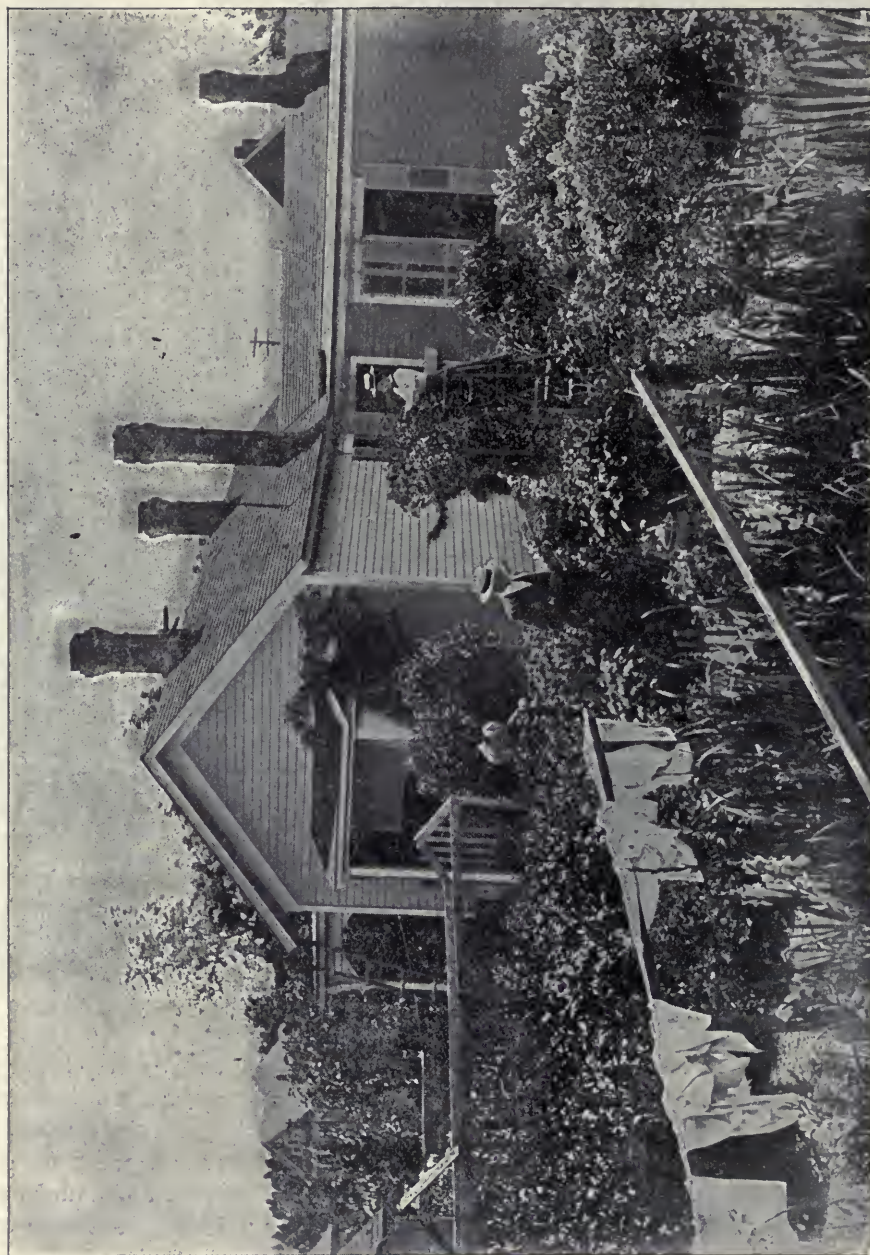


FIG. 2329. A BACK GARDEN IN COLORADO.



FIG. 2330. A PRIVATE GARDEN.

Back Yards.—It is not yet too late to sow some varieties of annuals for late flowering, and many a city and village back yard might be transformed from a barren waste, with rubbish heaps, to a place of beauty by a little attention during odd moments. Town boys and girls delight in helping in such work, and, judiciously planned, the work may be made to them both a source of health and of instruction in nature study. Fig. 2329, from *The Garden*, shows what can be done with such a back yard by utilizing every foot of space for flowers. Here the husband finds recreation from his office duties in the cultivation and care of his gladioli and other plants, while the wife has the benefit of that out of door life so necessary to her health and happiness, in the training of the bushes and the preparation of her table bouquets. In our illustration the Rudbeckia (Golden Glow) is seen to grow to

such a height that the lady requires an eight foot step ladder to gather the flowers, an instance of the excellent results attainable under such conditions.



FIG. 2331. A GARDEN BED.

FLOWER GOSSIP.

Be sure to have plenty of mignonette. You want so much of it that you feel safe in cutting freely. It is one of the most useful flowers we have for cutting.

The variegated hop is a charming plant for covering screens and verandas. Its leaves are quite as beautiful as many flowers are. This reminds me to say that the old hop of our gardens is one of the best vines for covering large surfaces, because it grows so rapidly and luxuriantly. It isn't a pleasing plant to handle without gloves, but it is pleasing to look at.

If you have a tiny lawn, don't spoil it by making it look as if it had an eruptive disease, as it will if you scatter flower beds all over it, but leave a solid space of green between the house and the street.

If you want a grand show, plant half a dozen hydrangeas, the hardy kind, in a group. A dozen will give greater pleasure if your lawn is large enough to allow it. Planted in a mass, the effect is exceedingly fine when the plants are in flower. One does not understand the decorative possibilities of this plant by seeing specimens planted singly. If possible, plant so that the group will have a background of evergreens.

Of course you will have Hollyhocks. Every amateur florist will, if he is wise. Like the hydrangeas, the hollyhock is most effective when grouped. I would never advise planting it singly. It is a good plan to sow a paper of Hollyhock seed each summer. By doing this you will have a fresh lot of young plants for each season's flowering, and it is from the young plants that you must expect your finest flowers.

If I were asked to name the best gen-

eral purpose hardy border plant, I would select the perennial phlox. It gives an almost solid mass of color, blooms for many weeks, and its carmines, reds and purples are exceedingly rich in tone. And it is very easy to take care of. Give it good rich soil, keep the grass and weeds away from it, and that is all you need do for it.

All things considered, the gladiolus is the best of all the summer-flowering bulbs. It is a flower anybody can grow, and it is lovely enough to satisfy the most exacting. You can have it in the most delicate colors, if your taste runs in that direction, and you can have it in colors of extreme brilliancy if such are your preference. It is something you can depend on to do well if you give it half a chance, but the better you care for it the better it will do, and it pays to give it liberal treatment. It likes a soil that is light, mellow and rich. Any soil in which corn will grow suits it, and it likes to be planted in the open ground about the time corn is planted. That is early enough. If you have bulbs enough to warrant you in doing so, hold back some for planting about two weeks later. By making successive plantings you can prolong the season for a month or more, thus securing fully two months' display of beauty from this charming flower. I prefer to plant the bulbs in clumps or masses; in this way a much better effect is secured.

Bedding Plants.

Where striking and peculiar effects are desired, it has become customary to make use of what florists term bedding plants in summer gardening. The term is used

to designate such kinds of greenhouse plants as bloom well when planted out in beds, or have striking foliage whose colors take the place of flowers.

The geranium stands at the head of the list. No other "bedder" gives such a brilliant show of color, or keeps up such constant bloom throughout the season. All you have to do to keep a geranium blooming from June to frost is to remove the flowers as they fade and prevent the formation of seed. The double kinds are the most popular for bedding, as the flowers last longer and give a more solid color effect.

Tuberous begonias are becoming very popular for bedding purposes. They are rich in color and produce a fine effect.

Heliotrope is an excellent bedder, flowering very freely in rich soil. It will be found very useful to cut from.

The verbena is one of the best of all bedders, being a very free and constant bloomer, and having intensely rich and beautiful colors.

Among foliage plants, the most popular is the coleus. Very striking results can be brought about by its use. By planting it close together and keeping the plants cut in closely, solid effects of color can be obtained. The colors being so varied and distinct, it is much used in carpet-bedding in which a set pattern is worked out.

The achyranthes and alternanthera are brilliant little plants which bear cutting in and trimming well, and are therefore used in producing "pattern" effects.

The centaurea has a soft grey leaf which contrasts well with the coleus, and is used in connection with it. Golden feverfew is also used extensively for bedding purposes.

All the plants named, except achyranthes and alternanthera should be set out one foot apart. These should be six

inches apart. Rapid growers must be trimmed frequently to keep them from getting the start of such kinds as are of slower growth, in order to produce satisfactory results. In carpet-bedding you want a smooth, even surface in which all the colors have a chance to equally display themselves.

In putting out plants, choose a cloudy day, if possible; water them well and shade for a day or two.

Tropical Effects.

One of the best plants for producing a strong tropical effect on the lawn, or in the garden is the ricinus. It can be grown from seed. It has immense palmate foliage of a rich green, shaded with red, with a metallic luster when looked at in the sun. It grows to be eight or nine feet high, branching freely. It is excellent for the center of a circular bed.

Another plant with large and striking foliage is *Caladium esculentum*. It has leaves two feet or more across and four in length when grown in very rich soil, each leaf being produced on a stalk sent up from the tuber. Fine for grouping about the ricinus.

The canna is a noble plant, with large rich foliage ranging through various shades of green and bronzy-red. Some varieties are tall growers, while others are quite dwarf. In addition to its fine foliage it bears very brilliant flowers.

The *Musa ensete*, or Banana plant, has very large leaves and is excellent for the center of a circular bed.

There are many plants such as palms, pandanus or screw pine, ficus and others of similar habit which can be put out of doors in summer with advantage to the plants. These can be used in helping to produce tropical effects.

The striped maize—a variegated variety of corn—can be used with excellent

results if several stalks are allowed to grow together. Its foliage is very much like the old "Ribbon Grass," though of course on a much larger scale. It should be planted, in "hills," like the common

corn, one stock not being sufficient to bring out the desired effect. As a plant to be used in the center of a group it is very desirable.

—*E. Rexford in Vick's Monthly.*

BEGONIA ERFORDII.

BY W. HUNT, HAMILTON.



FIG. 2332. BEGONIA ERFORDII.

THIS is one of the pearls amongst this useful and popular class of plants. Its habit of growth together with its free flowering propensity makes it a valuable addition to the numerous varieties of Be-

gonias known to floriculture. Even a small plant of *B. Erfordii*, when laden with its delicate pink blossoms, is very attractive, but when used as a border around some taller growing variety out in the open ground in summer, its beauty and adaptability for bedding purposes, as well as a pot plant, can be thoroughly appreciated. Used as a bedding plant it requires a light, well drained soil and, if possible, a slight shade from the sun during the very hottest part of the day. *Begonia Vernon* and *Begonia Ingrami* are also good varieties for bedding out. Being of a more upright habit and of rather stronger growth, these are well suited for the centre of a small bed, whilst *B. Erfordii* is better suited as an edging plant.

There is no reason why this type of *Begonia* should not become quite popular as bedding plants as both the *Erfordii* and *Vernon* are raised easily from seed. The seed should be sown in February or March in a greenhouse or hot bed and grown indoors until early in June, when the plants can be put out into beds or borders after all danger of frost is over. The seed requires careful sowing, as it is very minute, but after the plants have passed the seed period they are as easy to handle as almost any seedling plant. These *Begonias* also strike readily from cuttings. The plant as shown in the photo is growing in a $2\frac{1}{2}$ inch pot.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

PERSONALS.

Charles Forster, so well known as the New York forwarding agent of apples for Simons, Jacobs & Co., of Great Britain, died of typhoid fever on the 19th of April. Many of us remember this gentleman's able address on the export trade of apples before the American Pomological Society last September at Buffalo.

Mr. W. H. Hunt has been appointed superintendent of the greenhouses at the O. A. C., Guelph. He has been well and favorably known to our readers for some years past through his excellent contributions on floriculture, and in his new position he will have still better opportunities to help us in our work.

The Ven. Archdeacon Mulholland of Owen Sound, president of the affiliated local Horticultural Society of that town, passed away on the 19th of April. Foremost in every effort for civic improvement, as well as in matters educational and religious, the loss of such a man is a most serious one, not only to his own community but also to the country at large.

Export of Fruit.—Now that Mr. W. A. McKinnon is sent to Great Britain to remain a year studying the conditions of the fruit trade at the consumers' end of the line, we ought to reach some definite information which will help us in our business. So far however, we have not been given his Eng-

lish address, but we hope in time to be put in a position to correspond with him so that the fruit interests will be benefited as much as possible by his work.

Mr. Alexander McNeill, our well known director for Essex, has been made chief fruit inspector for Ontario and is one of the most efficient workers in our interest. Under his oversight the Fruit Marks Act will surely work out a revolution in the brands of Canadian apples.

Show at Wolverhampton.—Mr. A. McD. Allan of Goderich has the appointment to

take charge of the Canadian Fruit Department at Wolverhampton. He writes as follows :—

“I will leave about the 1st of May for Britain, where I shall remain all season at the Exhibition. I will be glad to hear from all our good fruit shippers who desire to put up fine brands and sell direct. I think there will be no trouble in doing this, with proper care in establishing reliable brands so that our shippers can sell at a price F.O.B. here. My address will be ‘The Fruit Department, Wolverhampton, England,’ and I will be glad if you will kindly make a note of this in the Horticulturist. I hope to give you an occasional letter.”

NOTES FROM OUR SECRETARIES.

CONTRIBUTED BY MR. G. C. CREELMAN.

Mr. Frank Metcalf, secretary of the Lake Huron Fruit Growers' Association, reports that their association is attracting considerable attention among the farmers. On Monday May 12th an orchard demonstration meeting was held in the orchard of Mr. A. W. Sloan. Mr. Alex. McNeill, of Walkerville, Dominion Fruit Inspector, and Mr. A. E. Sherrington, of the Experimental Fruit Station of Walkerton, gave practical demonstrations in spraying and talks on general orchard management.

Mr. R. Cullis, secretary West Durham Farmers' Institute, writes us of a successful orchard demonstration meeting held on the 8th inst., at Camborne, in the orchard of

Mr. Wm. Parsons. Messrs. E. Lick, of Oshawa, and T. J. Carey, of Cobourg, Dominion Fruit Inspectors, were the speakers. As a result of the meeting a local Fruit Growers' Association was organized to be known as the Township of Hamilton Local Fruit Growers' Association. The following officers were elected :—

President—Mr. Thos. Davidson, Camborne.

Vice-President—Wm. S. Carr, Cobourg.

Sec.-Treas.—R. Cullis, Camborne.

Nearly everyone present joined the Association. An adjourned meeting of the society will be held in Cobourg on June 10th, at 2.30 p.m.

A Fruit and Produce Directory is to be issued in Boston, in July. We are asked to give a list of the apple growers of Ontario for this work. No doubt those whose names are inserted will be put in touch with

buyers in foreign countries. We shall be glad if every apple grower will send in his name and address and we will include it in our list. Address L. Woolverton, Editor Canadian Horticulturist, Grimsby.

QUESTION DRAWER.

Cutting Back Cedar Hedge.

1289. SIR,—I have a Cedar (*Arbor vitæ*) hedge, five feet high. If I cut back to three feet will it grow out again all right.

W. H. CHAPLIN, Newcastle.

Such a hedge should be pruned annually or oftener, and never allowed to reach such an overgrowth. If trimmed to a conical form, or blunt conical, it will be found easier to keep its proper form than if cut square on the top. If the hedge is in this latter form and must be reduced from five feet to three feet in height, the owner must be prepared to see it unsightly on the top for two or three years, until the middle line on top recovers itself.

P. Barry and Mount Vernon Pear.

1290. SIR,—I am sending you to-day two pears of P. Barry, or at least that is what I ordered. Kindly let me know through the Horticulturist if they are true to name. Would it be a profitable pear to grow for export? I gathered the pears November 1st. I protected them from frost till gathered. Is our season long enough for them to mature properly? The other pear I got for Mount Vernon; is it true to name? Would it be profitable to grow for export?

GEO. H. NIXON Hyde Park, Ont.

The two pears are P. Barry. This pear does well in California, and fine samples are sent in to the New York market every spring, but the samples we have seen grown in Ontario are too small to be profitable.

The third sample is not Mt. Vernon, but probably some seedling. We do not advise planting Vernon for profit.

Mice in an Orchard.

1291. SIR,—Mice have done a great amount of damage in this neighborhood during the last winter, both to apple trees and to shade trees. Please advise me how to destroy them. Wrapping the trunks with new tarred paper protects them, but it is a great deal of trouble.

It is difficult to destroy mice in an orchard without also poisoning some friendly ani-

mals, and therefore the simplest means of saving the trees is by some kind of protection. We have had perfect immunity with a mound of fine earth about the trunk. Probably the simplest and cheapest thing would be the veneer tree protectors, figured on page 133. These are being made by the Grimsby Manufacturing Co.

Apple Canker.

1292. SIR,—Can you give us any information as to Apple Tree Canker, its cause and cure? If so, we will be very much obliged.

CAVERS BROS., Galt, Ont.

In his report of the Nova Scotia School of Horticulture for 1900-1901, Prof. F. C. Sears, in dealing with the subject of apple canker, says: "It attacks trees of all ages, but certain varieties seem to be very much more susceptible to it than others. The Nonpareil is more affected than any other sort, and in Annapolis County some orchards have been almost ruined by the ravages of this disease. It is caused by a fungus growing in the tissues of the tree just as the black spot fungus grows on the surface of the fruit, and at certain seasons of the year in the diseased areas may be found little brown pimples, in which are contained the spores or seeds through the agency of which the disease is spread. Just at what season or seasons these spores are scattered we have not yet determined, but they seem particularly prevalent in the early spring. The disease attacks the tree oftenest at a fork in the branches, causing an ugly grown wound, and often eventually causing the branch to break at this point. Not only this, but trees so attacked, even though they may not break, lose their vitality and become less and less profitable. Until we

can determine accurately just when the spores are spread, we shall lack an important item in our knowledge of how to combat this disease, but pending that discovery I would suggest removing as far as possible the affected branches, and careful and thorough spraying of the branches with Bordeaux mixture at the time the usual sprayings are made for black spot. I find this disease much more prevalent in Annapolis County than in Kings, and apparently very much on the increase there."

Winter Apple for Lanark.

1293. SIR,—Which variety of winter apple would you advise for this part of the province? The Pewaukee does well and is a fine apple, but drops its fruit badly. Please say how we should pronounce Bietigheimer?

You should succeed with Wealthy for early winter and Ben Davis for main crop. This latter hangs well on the tree, is a clean skin and colors well. We pronounce the name Beé-tig-i-mer, with the accent on the first and third syllable.

Fish Oil Emulsion.

1294. SIR,—Would you please give me the formula for the fish oil emulsion as a spray to kill aphids on cherry trees after bloom? Will it kill them without affecting the foliage?

Fonthill.

A. RAILTON.

The fish oil emulsion is rather strong in potash to be applied to the foliage. It is

for application just before the opening of the buds, which is the best time to treat the cherry aphid. The formula was given in our May number, page 184.

Begonia Ricinifolia.

1295. SIR,—I send you a photograph of a begonia grown in a north window of my dwelling house. This plant has been in bloom since the 20th of January. The flower is pink, leaves green on face with a row of red fibrel-like bristles on the under side along each vein. They measure 17x14 inches, with stems 22 inches long. Can you name it?

Lindsay.

S. GALBRAITH.

The begonia as shown in the photo is probably "Begonia Ricinifolia," although I would not like to be positive, as there are several varieties of this type of begonia generally known as Giant begonias that are very similar in appearance to the one shown in the photo. The flowering habit of this plant and the extraordinary large size of the leaves would lead one to suppose it was "Begonia Ricinifolia," as the latter, or specific name, "Ricinifolia," is derived from the fact that its leaves resemble in a marked degree the foliage of the well known ricinus, or castor oil plant. I have referred the photo and questioned one or two experienced plant growers, who agree with me that as far as can be seen from the photo it is the variety mentioned.

W. HUNT.

OPEN LETTERS.

Choice Fruits.

At the New York State Fruit Growers' meeting, held at Rochester, in January, 1902, the following replies were made through the Question Drawer, as to the best varieties of new fruits recommended for profit. In apples Mr. Willard and Mr. Woodward recommended Rome Beauty; G. T. Powell mentioned Hub. Nonsuch and Sutton Beauty; B. J. Chase named Twenty Ounce; Mr. Wadham and M. Hooker spoke of Jonathan. In peaches Mr. Willard mentioned Red Cheeked Melocoton; Mr. Woodward recommended Niger. In Japan Plums Mr. Willard claims Burbank and

Red June; one member recommends Satsuma. In European plums Mr. Hooker recommends Reine Claude, Lombard, Damson, Diamond, German prune and Fellenburg or Italian prune. In pears Mr. Hooker recommends Beurre Bosc, Bartlett, Kieffer, Duchess and Beurre d'Anjou. In cherries Mr. Willard recommends Windsor. In blackberries Prof. Beach recommends Rathbun; Mr. Kellogg recommends Mersereau. In red raspberries Mr. Kellogg mentioned King as the best early.

Fonthill.

E. MORRIS.

Spraying.

Now is the time every fruit grower should have his spraying outfit and material all ready for use and on the first mild day, just as the buds are beginning to open, should give his orchard a thorough spraying. If one observes carefully they will find the bud moth present, and although care must be taken to use the proper quantities of ingredients, this month and the next is the time when most of these mites can be destroyed, for

when the foliage is on the trees it is more difficult to get at them. I have found this time better than later on, especially for scale insects. We are using whale oil soap with blue stone for the first application, and will add Paris green for the next and subsequent applications. I am also using crude oil on some trees that are troubled with bark lice, as it seems more penetrating than the soap. I tried it on a few trees last year with satisfactory results.

R. L. HUGGARD, Whitby.

OUR AFFILIATED SOCIETIES.

Paris.—An excursion is proposed by this society to visit the O. A. C., Guelph, certainly a good example for all our horticultural societies, who would find much to interest them in the extensive greenhouses in Prof. H. L. Hutt's department.

The society also donated some thirty trees and forty shrubs to be planted on the new South Ward School grounds, which command a fine view of the Grand River.

Orillia.—The joint committee of the Town Council, Board of Trade and Horticultural Society has addressed a circular to the citizens of Orillia asking their co-operation in beautifying the town, by planting shade trees, caring for the boulevards, refraining from throwing waste paper in the streets, and improving the appearance of private property. The committee also calls attention to the Town Council's offer to place stone along the front of boulevards, where stone is provided by property owners, which can be done at about fifteen cents a foot; also to the offer to plant shade trees at twenty-five cents apiece.

London.—London, Ontario, is taking up the movement for beautifying the city, on lines similar to what has been proposed in Orillia: The movement to improve the appearance of the city by yet better kept lawns and gardens is taking root rapidly. Yesterday morning the Rev. Dr. Bethune called on Mayor Beck and said that the committee appointed by his Worship to prepare conditions for the proposed competition had already conferred and would soon have their report ready. They will include therein only those who do not employ assistance in the care of either garden or lawn. Citizens who can afford to secure help, they think, should not need any special stimulus. There is talk, Dr. Bethune said, of changing the name of the London Horticultural Society to that of the City Horticultural and Improvement Society. Members are now actively at work along this line. Some have taken up the effort to secure the con-

sent of factory owners to the planting of vines that will eventually hide bare brick walls; others to get the consent of the civic authorities to the placing of window gardens in public buildings, and so on. Mayor Beck believes the City Council another year might give a grant of \$100 or \$200 to the work of the society.—*Free Press.*

Local Fruit Growers' Associations.—The *Cobourg World* says: Last week local branches of the Ontario Fruit Growers' Association were successfully organized at Grafton, Colborne, and Brighton. The object of these local associations is the dissemination of information in reference to the fruit industry of this district so that our people may become more conversant with the best and most profitable methods of planting, cultivating, growing, harvesting and disposing of their garden and orchard products. Each member receives the valuable reports issued annually by the Fruit Growers' Association and Experiment stations, also the horticultural bulletins sent out by the Department of Agriculture from time to time.

The officers of the new association were elected as follows: Grafton—President, W. Winter; Vice-President, Jno. L. Grosjean; Secretary-Treasurer, T. Hoskin; membership, 20. Colborne—President, N. T. Lowe; Vice-President H. Purdy; Secretary, G. M. Peebles; Treasurer, K. J. Rutherford; membership, 35. Brighton—President, Jno. Jones; Vice-President, H. J. Scripture; Secretary-Treasurer, J. D. Sanford; membership, 40.

Pleasant, practical and profitable addresses were given at each meeting by Mr. G. C. Caston, of Craighurst, President of the Ontario Fruit Growers' Association; Mr. Elmer Lick, Oshawa, Director for District No. 6; Major H. J. Snelgrove, Cobourg, Director for District No. 5; and Mr. H. G. Vroom, Middleton, Annapolis County, N. S. Mr. P. J. Carey, Cobourg, Dominion Fruit Inspector, was also present. A demonstration in orchard practice, pruning, grafting, etc., was given at each place.

BOOKS FOR FRUIT GROWERS.

ALLEN—Cabbage and Cauliflower	\$ 50
Bulbs and Tuberous Rooted Plants	1 50
BAILEY—The Nursery Book	1 00
Annals of Horticulture	1 00
Annals of Horticulture	1 00
Principles of Agriculture	1 25
Principles of Vegetable Gardening	1 25
The Pruning Book	1 50
Principles of Fruit Growing	1 25
Field Notes on Apple Culture	75
The Forcing Book	1 00
Garden Making	1 00
Horticulturist's Rule Book	75
Plant Breeding	1 00
CURTIS—Left Overs Made Palatable	1 00
ELLWANGER—The Rose	2 25
FISKE—Prize Gardening	1 00
GOFF—Principles of Plant Culture	1 00
GREINER—Celery for Profit	20
Practical Farm Chemistry	1 00
How to Make the Garden Pay	2 00
The Young Market Gardener	50
The New Onion Culture	50
GREEN—Vegetable Gardening	1 25
HENDERSON—Gardening for Pleasure	1 50
Hand Book of Plants and General Horticulture	3 00
Practical Floriculture	1 50
HEXAMER—Asparagus for home use or market	50
HATTON—Secrets of Rose Culture	50
HILLHOUSE—House Plants and How to Succeed with Them	1 00
HEINRICH—The Window Garden	50
JOHNSON—Fumigation Methods	1 00
KING—The Soil	75
LONG—Ornamental Gardening for Americans	1 50
MATTHEWS—The Beautiful Flower Garden	40
MORSE—The New Rhubarb Culture	50
PEACOCK—The Dahlia	30
PARSONS—The Dahlia	1 00
ROBERTS—The Fertility of the Land	\$1 25
TAFT—Greenhouse Management	1 50
Greenhouse Construction	
VOORHEES—First Principles of Agriculture	1 00
WAUGH—Plum Culture	1 50
Harvesting, Marketing, Storing Fruit	1 00
Landscape Gardening	50
WEED—Spraying Crops	25
Insects and Insecticides	1 50
Fungi and Fungicides	1 00
WEIDENMANN—Beautifying Country Homes	10 00

Orders for any of the above books, accompanied by the Cash may be sent to Editor CANADIAN HORTICULTURIST, Grimsby, and the books will be forwarded at above prices; postpaid.

HIGH
GRADE

FERTILIZERS



SAMUEL H. CULP, Beamsville.—Have used your fertilizers the past season; will say I am well pleased with results for the following reasons:

- (1) My grapes were harvested a week or ten days earlier.
- (2) Berries larger and sweeter and ripened more even.
- (3) Vines in better shape for next year's crop; also used on pears with good results; pears smoother and more even in size.

Am pleased to place my order for another ton for this season.

Prices, catalogue and information on application. A good, thorough farmer wanted in every section to represent our high-grade fertilizers in any territory not already taken up.

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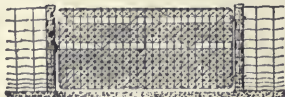
Landscape Gardener,
Grimsby, Ont.

Surveys made and working drafts prepared on reasonable terms

Improvements intended to be executed in the spring of 1903, should be planned out this summer or fall.

CORRESPONDENCE SOLICITED.

PAGE METAL GATES



are so low in price no one can afford to use wooden ones. Light, and yet strong enough to support a heavy man on the end while he swings around the circle without causing them to sag. They are neat in appearance, will last a lifetime. Will not sag nor get rickety. They are supplied with latches which allow them to be opened either way and are self acting. The only good metal gate that is low enough in price for general farm purposes. We also make Farm and Ornamental Fence, Poultry Netting, Nails and Staples. The Page Wire Fence Co., Limited, Walkerville, Ont.

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FIG. 2333. BOUGANVILLEA GLABRA.

THE CANADIAN HORTICULTURIST

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VOLUME XXV



NUMBER 7

BOUGANVILLEA GLABRA

VAR. SANDERANA

BY

A. ALEXANDER

PRESIDENT HAMILTON HORTICULTURAL SOCIETY

THIS plant, which is shown as the frontispiece to our magazine this month, is creating quite a large amount of interest among flower dealers in many parts of our country because of the ease with which it is cultivated, its great beauty and long period of blooming, as well as its lasting qualities when cut for table decoration.

When given liberty, by being planted out in the bed of a conservatory, it will grow to a length of twenty feet or more if desired, and be covered with its beautiful masses of rosy red bracts for at least six months of the year. The plant from which the photograph was taken began to bloom last November, and is still covered with masses of bloom. So persistent is it in flowering that the stumps, left in cutting the graceful wreaths of blossoms, break out afresh, and are soon a rosy mass.

It makes a fine pot-plant also, and a very small one will bloom for a long time, and on this account it is beginning to figure largely among our Easter plants.

It is named after Bouganville, a celebrated French navigator who flourished at the latter part of the 18th and beginning of the 19th centuries. It is common in the forests Brazil and Argentina, as well as some parts Southern Europe, where it is used to cover the fronts of cottages.

It is easily propagated by cuttings in sand.

The plant referred to above is trained to the centre pillar of the conservatory, then right and left to the beam 15 feet in one direction and 12 in the other, and from these two arms hang down hundreds of slender twigs covered with beautiful dark glossy leaves and multitudes of flowers. I know of no insect enemy infesting it, which is much in its favor. It is altogether a most desirable addition to make to a greenhouse or conservatory, especially if it can be planted in a bed. It is not at all particular about what soil it grows in, and it is no uncommon thing for me to have to cut canes of nearly 10 feet coming from the root in very sandy soil.

Notes and Comments

SMALL SIZED FRUIT FARMS

WE are more and more convinced that many of our Ontario fruit farms are too large for the best results. How often do we read of the immense crops of strawberries taken from a small garden, where every inch of ground received the best of cultivation and was enriched in the highest degree. Eight thousand quarts to the acre are seldom harvested in field culture, but frequently the small plot oversteps this exceedingly remunerative yield; and we say, how is it that we get 2,000 quarts of berries from the quarter acre garden, and sometimes only same quantity from a whole acre under field culture?

On the 10th ultimo we visited a fruit grower who had only one acre and a half of ground, and nearly the half acre was occupied with house yard, wood shed and barn. The rest was given intensive cultivation, mostly by hand. It was planted with peach, cherry and plum trees, with currants, raspberries and strawberries between the rows and under the trees. In 1901, a year when some of the large fruit farms barely paid expenses, he sold about three hundred dollars worth of fruit off his small garden, besides having abundance for his own table. All this he had done, without losing much time at the nursery at which he was employed. This man had been in Canada some years cultivating a fifty acre farm, which he found too hard work for his advanced years. He is greatly pleased with the change in his life, and says "I actually take in just about as much cash off my garden as I did off my farm."

Now this might not be the result in every

case. Some men are born gardeners, and succeed at the business, while others would sadly fail. Besides conditions count, and our friend is situated along one of those electric trolley lines which gather up the fruit at his door, and carry it to the city; and he is saved all expense of teaming his fruit.

Of course it is impossible for the 100 acre man to get such results from fruit growing, else he would soon be a millionaire. Usually if he gets a gross average of \$40 per acre, year after year, he is counted to be doing very well, for he has off years when crops fail, or gluts in the markets which stagger him, and prove that to succeed it is *quality* and not always *quantity* that counts.

CANKER WORM

THREE ounces of Paris Green to 40 gallons of water, as recommended on page 214, we find is not effective in killing this worm. Trees so sprayed were still full of them and hung down by threads almost as numerous as ever; so we doubled the dose, with eight pounds of lime to the barrel, and this worked like a charm.

THE PLUM CURCULIO

"THE plum curculio," says Mr. M. Pettit of Winona, "is my most persistent enemy, and I am anxious to spray it just at the time when the poison will do the most good. I have been advised," said he, "to wait until the blossom has fallen, and that there was no use treating the plum trees until the young plum was exposed." In our opinion this advice was bad. The young and tender foliage of the plum tree cannot be poisoned too early, for the little Turk

enjoys a bite from a tender leaf before oviposition, and if you can destroy the mother, you destroy her offspring. So we advise spraying for plum curculio much earlier than is usual.

"Well," said Mr. Pettit, "I believe you are right, for I waited for the fall of the blossom of my Washington plums, as advised on very good authority, that of a horticultural expert, an entomologist indeed, and by that time I found there was scarce one of those plums that was not stung." Now science and practice should agree; but unless the student is a practical observer, his theories often fail, and the theorist should work out his plans in an orchard and not always in a laboratory.

THE BORER

THE borer should be guarded against this month, if indeed he has not already done much injury. The flatheaded borer often completely girdles a tree, although worst on weak growing apple trees. To promote a vigorous wood growth is therefore a most effectual method of treatment. Indeed it is the neglected orchard in which we find these pests thriving, just as lice thrive on neglected chickens, and fleas on poorly kept dogs. But when once the borer is in the orchard he must be routed even if stern measures are necessary; and the knife must cut out and destroy the flatheaded larvae. Some plum trees (*Domestica*) at Maplehurst, are badly affected, and must first be cut to remove the larva and then washed with whale oil soap and washing soda (dissolved) as a protection from its further attacks.

THE EXPORT OF TENDER FRUITS

SOME Winona fruit growers are anxious to join in the export of early apples, pears and peaches, to Great Britain, in cold storage. Mr. Pettit says he has already had some correspondence with Mr. Alex. McNeill, Department of Agriculture,

Ottawa, into whose hands the superintendence of this work will fall during the present season, and who says it is his intention to encourage this trade.

BEST TOOLS FOR THE ORCHARD

THE best tools for orchard cultivation are no doubt the cheapest, and it is always a waste of money to work with a poor one. In our vineyards and orchards the hoe and the spade well sharpened were at one time indispensable; but, since the introduction of the grape hoe, the horses can do nearly all the work, and leave very little hand work. This enables the orchardist to cover a large area with comparatively little outlay for hired help, a most important item when waiting for an orchard to reach bearing



FIG. 2334. GRAPE HOE.

age. The grape hoe is drawn by one horse and easily guided so as to clear the ground closely about the rows of trees and vines. Another most useful implement introduced only of last years is the disc harrow, by means of which land, having once been plowed or which is not too hard, may be quickly worked up for any purpose. Those provided with an extension head, as shown in the illustration, will be still more useful than the discs made for ordinary agricultural work. "The disc harrow," says Van Deman, in *Green's Fruit Grower*, "is used more generally and with better effects in orchards than any other implement. Plows dig too deep, disturbing the roots, and are not used in orchards as formerly, except to

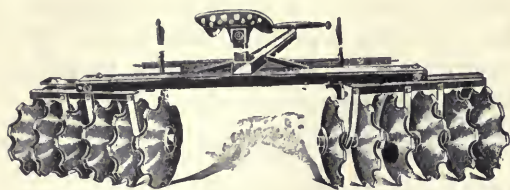


FIG. 2335. DISC HARROW.

turn sod on crops grown as fertilizers. The disc harrow goes over the ground much more rapidly than the plow, and does the work of plowing and harrowing at the same time. It is not desirable to cultivate deeply in the orchard, vineyard or berry field; in fact, it is injurious. One great object in cultivating an orchard or any kind of fruit plants, trees or vines, is to preserve continually two or three inches of loose soil over the entire surface, which acts as mulch, holding moisture in the soil and preventing evaporation. This cover of loose soil over the earth produces the same result as though the surface were covered with layers of straw. All you need to do is to move this soil with a disc harrow, or occasionally with an Acme harrow, at least once in two weeks, or once after each rain. Disc harrows are made to be adjusted so as to run at one side of the team, running closely to the rows of trees or other objects, without crowding the team or whippetrees onto the row. Every fruit grower or farmer must have a sharp tooth harrow. These are similar to the old style of harrow, excepting that the frames are of iron, and that they are made to cover a wider surface. No one should be satisfied without the best plow made, and it should never be used without a good sharp point. There are numerous one-horse cultivators made in various styles, and constructed so that by changing the teeth or other parts, one cultivator can be made to do many kinds of work, throwing the dirt towards the plant or away from it."

DESTROY THE FALLEN FRUIT

ALTHOUGH spraying for insect pests is a most important means of destroying them, success is not attained without the employment of every means available. Wormy fruit, allowed to remain as it usually does in great quantities under the tree, forms just so many feeding places for young larvæ of codling moth and curculio, which soon develop into native insects, ready to fly and sting other fruits and cause them to drop also.

Poultry, pigs and sheep will all help in the destruction of the infested fruit with its worm inhabitant, but, if these friendly animals are not at hand, it would pay to gather up the fallen fruit and destroy it. Brazelton in *Western Fruit Grower* speaks very decidedly of the excellent results attained by attention of this kind. He says:—

"After an experiment covering the past three years of picking up and disposing in some way of fallen fruit in our orchards, we find that our fruit becomes better and better each year, and our faith in spraying as the sole preventive of insect and fungus pests considerably lessened. Yet we do not decry spraying, but on the contrary we most heartily believe in it, and practise it. As a result of our observations, however, we are more and more of the opinion that, where both spraying and removing the fallen fruit are thoroughly done, that the latter is of very nearly as much benefit as the former. We believe that all such stuff should be hauled away to some creek, or other body of water, until the fruit attains sufficient size to be merchantable, after which the receipts from sales will about cover the cost picking up and disposing of it. We figure that, if the returns from sales balance the expenses, we realize a good profit in the increased quality of our No. 1 fruit. Spraying alone will not do, but every way of destroying the insects and fungi that is prac-

tical should be employed. We intend to try banding the trees in the future, and have no doubt that this will prove beneficial. If those who pick their apples and pile them on the ground in the orchard, will cover the piles with burlap, or any other old cloth, they will be astonished to see the number of worms that will collect on the under side of the cloth. Thousands of worms could be destroyed by dipping these rags in boiling water every few days. These worms will also be found in considerable numbers around the hoops and between the staves of barrels in which apples have been stored for the winter, and they can also be destroyed with boiling water. As evidence that this work pays we submit the fact that our fruit always sells at a premium this year of from 50 to 65 cents per barrel, and the proportion of firsts to seconds and culls is greater than it used to be."

GATHERING PLUMS

PROF. WAUGH, of Burlington, Vt., gives the following pointers under this head. Plums which are used for jelly should be picked as soon as they begin to color, and long before they are mature. Those which are picked for canning should be taken in the early stages of maturity, while those which are destined for dessert or table use should be allowed to become dead ripe before they are removed from the trees. Plums for shipment to market must be picked about as soon as they are well colored, some varieties even earlier. They must be taken from the trees before they show any tendency to soften. Many varieties, particularly of the Japanese group, will bear earlier picking and will ripen up well in the fruit packages in which they are shipped to market.

MARKETING

VARIETIES of plums which crack badly, or become soft in ripening, are not suitable for market, especially when long

shipments are to be made. The best prices for plums are usually realized late in the season, since this fruit is used chiefly for canning, and since housewives prefer to do the canning as late as possible, after hot weather is passed.

QUANTITY OF FERTILIZER FOR EACH TREE

MAYNARD, of Massachusetts, gives three formulas for the treatment of apple orchards on land that cannot be cultivated and the amount of fertilizer to be applied upon the growth of the trees. Of course such trees, standing on sod, would need more fertilizing material than they would require if the land were cultivated. The following shows the amounts per tree grown in sod:

- (No. 1) 1 lb. to 5 lbs, Nitrate of Soda.
 1 " " " Sulphate of Potash.
 2 " " 10 " Acid Phosphate.
 (No. 2) 1 " " 5 " Nitrate of Soda.
 10 " " 25 " Good hard wood ashes.

(No. 3) Stable manure, 5 to 20 large forkfuls, apples in fall or winter, and the same amount of potash and phosphoric acid, or wood ashes as in formulas No. 1 and 2. Orchards that are making less than from six to ten inches of new wood each year, are in no condition to bear fruit that will be satisfactory in respect to either quantity or quality; yet it is evident that more than half of our apple orchards are lacking in vitality as a result of neglect.

THE CHERRY HARVEST

THE cherry harvest is now becoming important in some sections in the Provinces. In that portion bordering on the south shore of Lake Ontario, and the north shore of Lake Erie, and indeed nearly all the east shore of Lake Huron, the more tender varieties of the sweet cherry class seem to be worthy of a place in a commer-



FIG. 2336. EARLY PURPLE.

cial way, but even in these sections a frost at the end of May or beginning of June is often fatal to the crop.

The earliest cherry of this class is the Early Purple, which occasionally gives a full crop at highest prices, though a cherry of only medium size and ordinary quality. Some old trees have made a good record for productiveness, and made the owner a fine return, but as a rule the birds take a good share of the crop, and, if gathered before ripe enough to please the appetite of



FIG. 2337. WINDSOR.

the birds, they are but skin and bones, and not deserving the name of Purple. In England it is customary to protect valuable cherry trees from the birds by means of large nets, which are spread over the trees, a good suggestion for us if we want to succeed with certain varieties of oxhearts.

This netting is sold very reasonable, as we note in a recent issue of the Journal of



FIG. 2338. LATE DUKE.

Horticulture several such advertisements as the following :

Garden Netting.—Small mesh, keep out the smallest birds, oiled and dressed ; will not rot if left out in all weathers. 105 yards by one yard wide, 72 cents; by two yards wide, \$1.44; by three yards wide, \$2.16, and so on to any width. G. H. Netting Works. Rye.

Edge, of Maryland, says :—

"For protecting cherries from the birds I bought a lot of damaged mosquito netting, and sewed it into a piece six yards square. This I put over an Early Richmond tree and drew it together at the bottom. The sun shines through, but the birds are kept out. It stays on only a few days while the cherries are ripening, and is then taken off and laid away for another year."

In our commercial orchards, however, we will find it best to plant those which are

not subject to the attack of the birds, as for example the Bigarreau class, which have a flesh too firm for their beaks. Without attempting to make reference to the other desirable varieties of sweet cherries, we show two of our latest market kinds, the Elkhorn and the Windsor. This latter has been introduced with a great flourish, and since it is of Canadian origin, we hope it may prove the best of its class. We have planted a few hundred trees, being so well pleased with the first samples borne in our experimental plot; but a few years' experience may be needed to determine whether it, or the Elkhorn, is the more valuable for main crop. The latter has been grown for forty years at Maplehurst, and often bears a prodigious crop of fine dark fruit. Both ripen about the middle of July when other varieties are out of the market, and consequently bring good prices. Both are subject to rot in wet seasons, but possibly we can control this by treatment with copper sulphate.

The English Morello is the best late sour cherry. It is a famous cropper, dark in



FIG. 2339. ELKHORN.



FIG. 2340. ENGLISH MORELLO.

color, and will hang long after it is ripe. In the Western States it has been sold under the name of Wragg, and no doubt some nurserymen have been making money out of fruit growers by selling this old variety under a new name. We have them both side by side in our experimental plot, and can see no difference whatever.

Of cooking cherries none can compare with Dukes, a class of semi-sour, red cherries, that cannot be excelled for sauce and pies. The May Duke is a familiar example of this class, which is frequently ready for use the latter part of June. Among the others of the class, we have the Olivet, a sparse bearer, and most



FIG. 2341.

excellent in quality, and the Late Duke which considerably prolongs the season, though otherwise very similar to the well known May Duke.

MULCH FOR APPLE ORCHARDS

HITCHINGS, of Onondaga County, N. Y., is an ardent advocate of mulching for apples in preference to cultivation. Instead of ploughing his orchard he cuts the grass and places it about the trees. This he claims answers a double purpose; it saves the fruit from bruising when it drops, and it retains the moisture in the soil, and this latter is surely as good as a dust mulch made by cultivation, and much less expensive. He claims also that it is superior to Mr. Woodward's method of growing an orchard in sod, and keeping sheep in it to fertilize it, and eat up the fallen apples.

In a recent issue of the R. N. Y. Mr. Hitchings writes:—

Mr. Woodward gives an estimated gain of \$6 per acre in fertility and \$8 in pasturage. During the time his sheep were making this \$14 gain per acre eating fallen apples, I was picking up from the grass mulch the Astrachan, Oldenburg, Wealthy and Gravenstein, practically uninjured, and selling them for top prices, for these kinds of apples should be left on the trees as long as possible to be at their best. Those picked up brought at least \$60 per acre, pretty expensive sheep food. I think, furthermore, that the yield per tree was increased by leaving the apples until fully matured. I fight the Codling moth by spraying; have had no trouble with the apple maggot; am saved the expense of building fences to enclose the sheep, and can employ the time that would be spent in caring for the sheep in growing strawberries, which pay one much better.

My first experience in apple growing was watching the sheep to keep them from girdling some young trees set among the older ones. I came to the conclusion then that growing fruit trees and sheep were a poor combination, so first the sheep went, then the hogs, and then the cows, all but one, and I have never missed them, financially, out of all the stock put together. For a full-grown orchard where the roots have full possession of the soil, with trees headed high and strictly commercial varieties, Mr. Woodward's method is all right; but for a young orchard and a local market I differ with him. After all, whatever method is followed, the man at the helm is the deciding factor between success or failure.

MULCH FOR PEAR TREES

MR. E. C. BEMAN, of Newcastle, Ont., has for years practiced this treatment of his pear orchard, with excellent results. The accumulated cut grass of many years deeply covers the ground about the trees and protects the fallen pears from injury, and through gradual decay is furnishing fertility to the soil. Providing material is at hand in sufficient quantity no doubt mulching the ground under orchard trees is commendable, and in heavy clay soil much less laborious than constant cultivation.

THE ROXBURY RusSET

THE Roxbury Russet has more value than it usually gets credit for. Only recently, May 20, 1902, this apple was worth \$4.00 a barrel in the markets, and no apple comes out of the cellar in such excellent condition in the month of May. The tree is spreading, reminding one of Greening, and in its appearance the fruit often resembles that old variety. Not usually on the list for planting, the Roxbury has been little considered, and yet no apple we grow may be counted upon to come out in the spring with a better showing. It has one fault, in that it is very subject to Codling moth.

MICHEL, THE FIRST EARLY STRAWBERRY

BY general consent the commercial growers of strawberries in Ontario, give this the first place for earliness. They plant Michel and Williams to cover the season, the latter for main crop. This season Michels were offered in Hamilton market about the 1st of June; they were grown in a specially favored location, but the crop generally was having its first picking between the 5th and the 9th; while as yet no other variety generally grown was showing a ripe berry.

This characteristic makes Michel a profit-



FIG. 2342. MICHEL.

able market berry. It often brings 10 to 12 cents a quart, while the late ones only bring 6 or 7; and when you count off three or four cents for packages, growing and picking, you have a net profit of say 7 cents a quart for Michel opposite 4 cents for Williams. It would require a big difference in yield to make the latter the more profitable. On some soils Michel does very poorly, giving a very light yield and, after the first picking, very small berries. It is by no means the "Lazy Man's Berry," but given proper soil, cultivation and manure, a good yield can be secured.

On the 10th ultimo we took a photograph of a box of Michel, which gives an idea of the berry just as it came from the patch. It was selling then at ten cents a box. Michel has a perfect blossom, and is thought to be a chance seedling from Crescent on the grounds of J. G. Michel, Judsonia, Ark. The berry is sweet in flavor and much valued as a table variety.

The Sunrise is being grown for first early berry, by some growers, in place of Michel;

and they say it is on the whole rather more productive than Michel, and if anything averaging a little larger. From the experience of others however we infer that this superiority is purely local. We shall be pleased to have the opinion of some of our readers.

A BOYS' INSTITUTE

THE Broadview Boys' Institute, under the management of C. J. Atkinson, affords invaluable opportunities to city boys who have a taste for country life. Here they are not only associated together as a kind of club, with opportunities of engaging in healthful sports, but they are privileged to have special courses of study fitting them for their life work. A most important adjunct is the practical work afforded to each boy, wherein his own individuality is allowed full play. The large garden is laid out in the form of a township, with farm for each boy, represented by a plot of ground twenty by forty feet in extent, for which he pays taxes by a certain number of hours' work a week in the general kitchen garden, otherwise all the proceeds of the garden are his own. The boy farmers elect their own reeve and councillors; inspectors are appointed who view the condition of the farms and report cases of neglect. Tenants convicted of neglect are ejected, and their farms leased to other boys.

A walk through the garden on the 16th of June was full of interest. Each farm was named, and some were kept with scrupulous care, while others showed evidences of neglect; but on the whole the interest in this part of the work on the part of the boys was most marked, and the training must be of the greatest benefit.



FIG. 2343. HUMBOLDT BLACKBERRY, ONE OF MR. BURBANK'S "NEW CREATIONS."

MEN WHO HAVE SUCCEEDED—IV

LUTHER BURBANK CONTINUED—HIS WORK—A CHAPTER OF SUCCESS

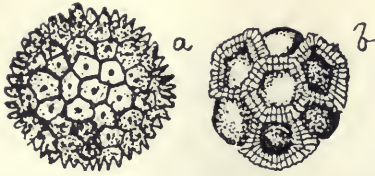
THE RESULTS attained by Luther Burbank have been so numerous and wonderful, that we must make special reference to some features of his work.

Methods.—Starting out with a theory contrary to the usual one of fixity of species, he held that the Universe is "eternally unstable in form, eternally immutable in substance. There is," says he, "Not one weed or flower, wild or domesticated, which will not, sooner or later, respond liberally to good cultivation and persistent selection. What can be more delightful than to adopt the promising individual from among a race of vile, neglected weeds, down-trodden and despised by all; to see it gradually change its sprawling habits, its coarse, ill smelling foliage, its insignificant blossoms of dull color to an upright plant with handsome, glossy, fragrant leaves, blossoms of every hue, and with fragrance as pure and lasting as could be desired. Weeds are weeds because they are jostled, crowded, cropped and trampled upon, scorched by fierce heat, starved or, perhaps, suffering with cold, wet feet, tormented by insect pests or lack of nourishing foods and sunshine. Most of them have no opportunity for blossoming out in luxurious beauty and abundance. A few are so fixed in their habits that it is better to select an individual for adoption and improvement from a race which is more pliable. This stability of character cannot often be known except by careful trial, therefore members from several races at the same time may be selected with advantage; and the most pliable and

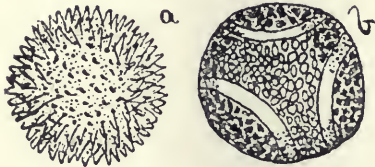
easily educated ones will soon make the fact manifest by showing a tendency to "break" or vary slightly, or perhaps profoundly, from the wild state. Any variation should be at once seized upon and numerous seedlings raised from this individual. In the next generation, one or several even more marked variations will be almost certain to appear, for when a plant once wakes up to the new influences brought to bear upon it, the road is opened for endless improvement in all directions, and the operator finds himself with a wealth of new forms which is almost discouraging to select from as, in the first place, it was to induce the plant to vary in the least."

Cultivation and environment are, in Mr. Burbank's view, capable of producing wonderful changes in the common forms of plant life, and his first aim, in consistency with his theory, is to so treat the species to be improved that it will have extraordinary vigor stored up, which will sooner or later be manifest in its breaking away in some details from its usual characteristics. When this stage has been reached the greater possibilities are open by crossing with other species, in order to breed into the subject such traits as shall bring about the ideal fruit or flower. Nor has Mr. Burbank confined his operations to individuals of one genus to pollinate individuals of another, but he has succeeded in crossing plants belonging to entirely different genera, thus producing true hybrids.

Since Botany has become one of the school subjects, no one needs to be told how plants are pollinated by applying the pollen grains



(a) Morning Glory. (b) Black Oyster Plant.



(a) Hollyhock. (b) Passion Flower.

FIG. 2344. POLLEN GRAINS (HIGHLY MAGNIFIED).

of one flower to the pistils of another, either by natural or artificial means. These grains, so alike to the naked eye, reveal great difference under the microscope, as may be seen from our illustrations. Mr. Burbank gathers his pollen about a day in advance, and after drying it carefully, shakes it out on a watch crystal, until he gathers a sufficient quantity. Properly dried pollen he finds, retains its efficiency about a week.

Prof. Wickson in the *Sunset*, says:—

"The preparation of the blooms of the seed parent consists in removing about nine-tenths of the bloom buds when they begin to show the petal color, leaving, in the trees which bloom freely, about one in ten of the natural bloom to be operated upon. This is for convenience of operation and to avoid the setting of too many seeds for the tree to be properly perfect. Before the petals open, each of these buds is carefully cut into with a small sharp knife blade, in such a way that the petals and a part of the sepals and all the attached anthers are removed as the knife makes its circuit, leaving the pistils exposed but uninjured by the operation. The removal of the corolla balks the bees and other honey-seeking insects, either by the loss of color or by absence of a lighting

place, or both. The buzzing Archimedes finds no place for his lever and wearily goes his way, the honey unsipped and the pistil free from contact with its pollen-dusted body. Mr. Burbank finds it, in most cases, unnecessary to cover the emasculated bloom to avoid intrusion of undesirable pollen by insect agency.

He chooses for pollination the time when the first hum of the bees is heard in the trees. He finds all conditions at that time most favorable, and believes that the pistil is then in its most receptive state. The instrument of pollination is the finger tip. Applied to the dusted surface of the plate, either by a mere touch or a slight rubbing, enough pollen adheres. The finger tip is then quickly touched to the pistils of the prepared blossoms one after another. They welcome the pollen and the fructifying agency begins at once its journey to the ovule. No matter what comes now, on the wind or otherwise, the opportunity for outside pollen has passed. The touch of the finger has covered the stigma with the chosen element and sealed it safe from further intrusion. In his choice

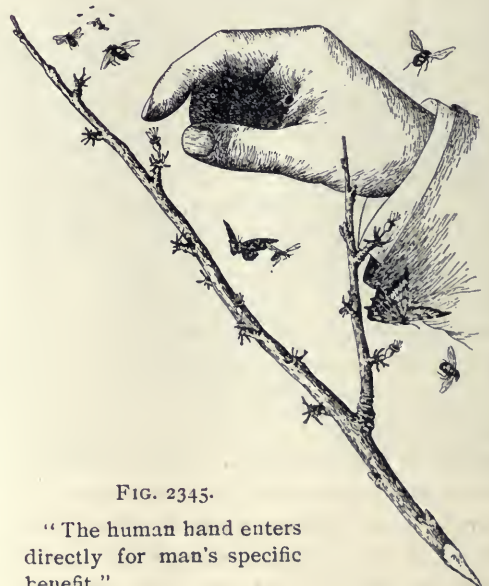


FIG. 2345.

"The human hand enters directly for man's specific benefit."

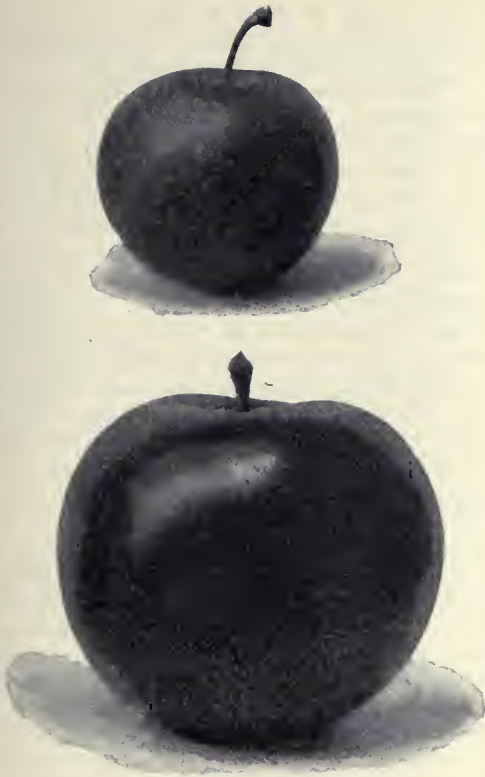


FIG. 2346. HYBRID PLUM, GOLDEN, AND ITS MALE PARENT, ROBINSON (both life size).

of the unaided hand as the instrument of pollination, Mr. Burbank has not only vastly simplified and made more expeditious the act of pollination, but there is also involved a profound tribute to the superiority of the trained hand in directness and delicacy for what lies within its unaided scope. Recourse to instruments and appliances is often essential, but in many lines of human effort, the direct contact of the finger tip works.

The seed resulting from such pollination is of course gathered with greatest care, and from these seedlings are produced perhaps thousands, of which only an occasional one is selected as giving promise of value.

Results.—One object in view was to obtain varieties that would be more productive ; and by mingling the native American

with Japanese plums, a new era in plum culture has been introduced. For example our illustration shows one of the new hybrids, the "Golden," a hybrid between the Robinson (American Chicasaw) and the Japanese Sweet Botan. (Fig. 2346).

An example of the successful crossing of different genera, usually thought impossible, is seen in the blackberry and raspberry crosses, some of which are likely to prove of value to the fruit grower, one of which is shown in Fig. 2343, a hybrid berry, grown from seed on improved California Dewberry, fertilized by the well known Cuthbert raspberry. Wonderful changes in color, flavor and aroma have been secured, as for example, the Bartlett plum, and Pine-apple quince ; and still more surprising changes



FIG. 2347. VINE OF BOUGANVILLEA. (See frontispiece.)



FIG. 2348. ICEBERG, THE NEW WHITE BLACKBERRY.

in the natural structure of fruits, or in the case of the stoneless prunes, in which the kernel is fully developed but naked, having no hard substance between it and the pulp. Changes in the seasons of ripening and the production of varieties which show remarkable precocity of fruit bearing have also been brought about, as for example a chestnut which was in fruit at eighteen months from the sowing of the seed, the seedlings of which seem to possess similar precocity.

The new White Blackberry, the so-called paradox of the fruit world, which our Association distributed to its members this spring, is another example of the results of Mr. Burbank's success. Of this we give Mr. Burbank's own description, and hope soon to have its verification in all parts of our province.

"Owing to the somewhat unsatisfactory qualities of white blackberries so far known, the impression may have been entertained by some that no white blackberry

could be as productive and hardy, with berries as early, abundant, large, handsome and delicious, as the best black ones.

"The well-known Lawton is when ripened, unsurpassed, and very generally known as the most productive market berry. Owing to its fixity of race, it will reproduce itself from seed almost exactly, and its seedlings will not be influenced, when raised from seed pollinated by other varieties, but it steadily imparts its good qualities when employed as the staminate parent. One of the great grandparents of 'Iceberg' was Lawton. The first generation of seedlings when crossed with Crystal White, was all black; the second also, though varying much in other respects; but the third produced this wonderful plant bearing the snowiest white berries ever seen.

"Very little attention was paid to the long rows of cross-bred descendants, until one day this berry was discovered, among its black relatives, with the canes bending in various directions with their load of delicious, snowy berries, which are not only white but so transparent that the seeds, which are unusually small, may be seen in the berries when ripe.

"Clusters, larger than those of Lawton ;



FIG. 2349. SHASTA DAISY.

berries, as near as could be judged, were at least as large, earlier, sweeter, and more tender and melting throughout, though as firm as Lawton is when ripe."

Nor is it alone in fruits that this success is apparent but in flowers also many surprises have been brought about, and more are in expectation. For example the new Clematis, a hybrid of *C. coccinea* and *C. crispa* is a beautiful production. It is a vigorous grower and produces flowers in abundance from June until frost, with a blending of colors and shadings not elsewhere found in the Clematis family.

Another and still more recent is the Shasta Daisy, which is very popular. It is a hardy plant, and blooms for several months; the flower is large, fully three inches in diameter, and has three or more rows of petals of remarkable whiteness. This plant is a cross between the weedy American species of *Chrysanthemum Leucanthemum* with the European and Japanese species, followed by a long period of rigid selection. Our engraving shows this Daisy reduced very much, with one of its insignificant looking parents in the background.

BURBANK'S "SHASTA DAISIES."

He took the little daisy
By the dusty roadside growing;
He touched it with his magic wand
And set its petals blowing.

From the dingy, ragged blossom,
(A weed of the weeds that grow)
He made a stately flower,
As white as the drifting snow.

No longer by the roadsides,
But in garden and mansion and hall,
It sheds its queenly beauty,
Admired and praised by all.

It crowds each great occasion,
To the fair bride lends its grace;
And its delicate purity softens
Even the dead, cold face.

O, matchless Wizard, a lesson,
We would learn of your patience and art,
Then we, too, may make flowers
From the weeds of the human heart.

Taking the weeds of inaction
That crowd in the dusty glooms,
By loving thoughts and words and deeds
Make character's snowy blooms.

Santa Rosa, June 21.

—*Press Democrat.*



FIG. 2350. BURBANK PLUM.

THE BURBANK PLUM

THE Japanese plums are proving of much wider adaption than was dreamed of on their first introduction. It was a surprise when a few years ago, they were proven to be hardy at the Central Experimental Farm, Ottawa, and still greater when the Burbank was found by Messrs. Hutt and Woolverton growing and producing fruit in quantity away up in St. Joseph Island, and even on the north

cribed it in his report of that year, under the name of Burbank, in honor of the introducer.

Mr. Willard of Geneva, N. Y., was one of the first fruit growers to become convinced of the value of this plum for orchard planting, and stated before the Western New York Horticultural Society in 1894 that he had planted an orchard of 1500 trees, and knew of no plum that was more profitable,



FIG. 2351. BURBANK PLUM.

shore of Georgian Bay, near the "Soo." Prof. Bailey finds an explanation of this hardiness in their Botanical relationship with our native American species, and notes herein another evidence that once there was a land connection between Northwestern America and Asia.

It was in 1885 that Mr. Burbank imported some plum trees from Japan and when they fruited he selected this as one of the best, and most worthy of propagation. In 1891 he sent samples to the Department of Agriculture at Washington, and Mr. H. E. Van Deman, Pomologist of the Department, des-

This plum has now been before us for about ten years and notwithstanding the great number of Japan varieties now sold by the nurserymen, none seem to hold a higher place for commercial purposes than the Burbank. Next to it in value comes the Abundance, which however is not a competitor, being nearly a fortnight earlier in season.

Compared with the *Domestica* class, the Japans are inferior in quality, but when fully ripened are fairly good eating. Like the Kieffer pear, the Burbank plum is making its reputation rather on quantity than quality.

DESCRIPTION.

Origin.—Imported from Japan in 1885, by Luther Burbank of Santa Rosa, California, and introduced to the trade in 1890. Named after the introducer, by H. E. Van Deman.

Tree.—Hardy ; a very vigorous wayward grower, making a very badly shaped tree, unless severely headed back and kept within bounds ; an early and most abundant bearer ; the fruit needs thinning to secure a good size ; class, *Prunus triflora*.

Fruit, two inches in diameter, nearly round, but slightly conical ; skin, orange yellow ground, shaded with red, and almost purple on side exposed to the sun ; very smooth, with a slight bloom ; peels easily when ripe ; suture traceable ; apex a small point ; stem half to five-eighths of an inch long, stout ; cavity deep, abrupt, with leather crack marks.

Flesh.—Color amber, texture juicy, tender when fully ripe ; flavor sweet, fairly agreeable ; stone, medium, pointed, cling.

Quality, good for cooking, fair for dessert.

Value, first-rate for market. **Season**, end of August. **Adaptation**, general.

The following notes on this plum have been given us by some prominent fruit growers:

G. E. Fisher, Freeman, Ont.:—"I have not a large number of trees of this variety, but they have cropped well from the first, and the trees seem healthy notwithstanding the large annual yield. They are not loaded heavily this year. My crop of plums is light outside of Reine Claude, which have enough for two crops. This is, I think, an exception as so far as I have observed the crop of Reine Claude will be light. My Burbanks, when the trees were not over-loaded, were good size but ripened unevenly. It is a good shipper. The tree is a spreading grower and requires to be heavily cut back to keep it in anything like a decent shape.

Japan plums are all of an indifferent quality, but my trees have been hardy and the fruit profitable."

W. H. Dempsey, Trenton:—"Have found it hardy here as to wood, none has been held back. The blossoms have been injured once with a late frost. A very rapid grower. Then the branches come down making ill-shaped trees very productive. Three trees planted in 1896 produced 25 baskets of fruit last year, which sold well. I consider it one of the best commercial plums I have."

Mr. Harold Jones, Maitland:—"The Burbank plum is one of the best of the Japanese for this section, though it has the defect of all of its class in being tender in the fruit bud. In my experience the tree is a strong grower with hardy wood and will bear fruit with me on years that the Lombard bears, and is free from black knot and shothole fungus so troublesome on many of the European varieties."

Frank Metcalf, Blyth:—"I planted a number of Burbank plum trees five years ago. They are all doing well. They are very vigorous growers and perfectly hardy. They are heavy bearers. The fourth year some of my trees yielded over four baskets per tree. The fruit has a splendid appearance and is a ready seller, although the quality is only fair. Everything considered I can recommend it as decidedly above the average."

W. H. Bunting, St. Catharines:—"The Burbank is probably the most valuable of the Japan plums yet tested, and is the most largely planted. It is an annual and enormous bearer. To obtain a good sample it must be thinned severely ; owing to the abnormal and erratic growth of the tree it must be carefully pruned in order to keep it within bounds."

A. M. Smith, St. Catharines:—"I consider it the best of all of the Japan type I have yet tested, and I have a dozen or more of them,

I have fruited it five or six years and find it an early and constant bearer, when not allowed to overbear. Its quality is good and it is a good shipper, and for a canning plum it is second only to Reine Claude, according to a report of expert canners made at Rochester N. Y., where a committee tested ten or twelve varieties not knowing what they were.

J. G. Mitchell:—Burbank is perfectly hardy here, and succeeds all through the County of Grey. A strong grower but very sprawling in habit. It is unequalled for productiveness. The fruit is a fairly good shipper, and has sold with us about the same as Lombards. In quality, I would place it about second or third among the Japans, but away behind as compared with our best European varieties.

G. C. Caston:—My experience with the Burbank is very satisfactory. It is ahead of anything in the plum line I have ever tested.

There are better plums in point of quality, but my customers like it well for canning. In yield it is away ahead of all others. Last year I had five trees in bearing, that were only four years planted, and we picked twenty-six 12-quart baskets.

W. W. Hillborn, Leamington:—The Burbank plum is quite hardy with me. No other variety withstood the severe test of that cold winter, which destroyed so many peach and plum trees in this locality. I have twenty-four trees seven years planted. Last year I sold one hundred dollars worth of fruit from them. I find it one of the best shippers we have. It ripens just before the European varieties, therefore sells well. It is not of as good quality as some of the Japan and most of the European sorts. For this district it is one of the best money makers we have.

J. H. HALE ON THINNING FRUIT

IT IS the large, fine fruit that brings the profit; pays the mortgage, labor, fertilizer and cost of everything. To have high grade fruit we must thin. Fine peaches will bring from ten to sixteen times as much, besides not weakening the trees, as little peaches, which are nothing but seed, skin and wool. You have a law that will not allow you to sell milk which is more than so much water. We fruit growers have the advantage over every other producer: the more we water our stock the more they will pay us for it, and the more solids the less they pay us for it. Peaches that are 15 per cent. solids and 85 per cent. water are worth 50 cents, but those only 10 per cent. solids and 90 per cent. water are worth \$3 or \$4. I say, dose

them with water; soak them, and this is easiest done by thinning and so getting large fruit full of water. When the manufacturer turns out damaged goods he is wise enough to keep them separate and sells them for whatever anybody will give. He means to have as few damaged goods as possible, however. We fruit growers have been producing a great many damaged goods, and then, instead of using good judgment and culling them out, we mix good ones with them and send them to market and sell the whole business for the price of damaged goods. We had to throw in the good ones. By proper thinning we can get the damaged goods down so we will not have more than 5 or 10 per cent. of inferior goods.

SOME POINTERS ON THE COLD STORAGE OF FRUITS

MUCH YET TO BE LEARNED—SOME SELECTIONS
FROM A PAPER READ BEFORE THE WESTERN NEW
YORK HORTICULTURAL SOCIETY LAST JANUARY

BY

G. H. POWELL

OF WASHINGTON

THERE is still much to be accomplished before the engineering of refrigeration will have reached its highest perfection. The relative merits of different systems of cooling, of different refrigerating media, of ventilating systems, a clearer knowledge of the methods of maintaining a desirable degree of humidity, and of a more even distribution of temperature most desirable for different fruits; and for the same fruit in different conditions, or of different varieties of a given fruit; the influence of sudden versus gradual cooling when fruit is put into storage, and of warming it up when it is removed; of tight versus closed packages, of the exact temperature at which different fruits will freeze, of the degree of maturity at which fruits should be removed from storage—these are a few of the points on which more exact information will need to be worked out from the standpoint of the storage men.

There is little exact information concerning the influence of cultural methods, and of various stages through which a fruit passes before it reaches the storage compartment, or its durability after it once reaches there. It is highly desirable in the interests of both storage men and fruit growers that we know more of the influence of young versus of old trees, of cultivated and well-fed versus uncultivated and starved orchards, of the character of the soil, the

exposure and altitude of the orchards, of moist versus dry seasons, of the degree of maturity of the fruit, of the length of time that elapsed before the fruit should be stored after picking, and of many other factors that pertain primarily to the orchard, on the storage durability of the fruit.

I would not convey the impression that the refrigeration of fruits—especially of the apple—is a chaotic condition. On the other hand, the evolution of the system of refrigerating plants has been so rapid that modern storage houses carry enormous quantities of apples, of citrous fruits, and of vegetables for months in a satisfactory condition, and with little loss. I would emphasize the fact, however, that the definite knowledge of many of the phases of the storage question often leads to important losses in the storage houses, and to serious misunderstandings between storage men and fruit growers. There is a popular misconception among fruit growers that a low temperature will preserve fruits almost indefinitely, and the losses in the storage house are usually attributed to a faulty management of the storage plant itself. As a matter of fact, there are many factors that enter into the making of a fruit with good keeping qualities, and these factors operate while the fruit is growing, during the period between the picking of the fruit and its storage, and during the storage period.

In the future it is hoped that the investigations may be broadened so that eventually the various fruits and vegetables may be included in the experiments. During 1901 the principal winter apples and the Kieffer pear have been under investigation, an outline of which and a report of progress follows :

The Kieffer is the great business pear for the masses of planters and consumers outside of the Pacific coast district. It is grown in enormous quantities in the tide-water States, from New Jersey southward to Florida, in Texas, Pennsylvania, Illinois, Indiana and Ohio ; smaller, but important, plantings in New York, Western Michigan, Missouri, Arkansas, Kansas and in the Niagara Peninsula of Ontario, Canada, and still smaller orchard areas in nearly every other State where pears will grow. New orchards of Kieffer are still being planted throughout the Kieffer belt, though the extension is less rapid than previous to 1899.

The production of the Kieffer has become so vast that the cost of production is hardly realized when there is a general apple crop, and when peaches are abundant for canning. The bulk of the crop is used for canning while the fresh fruit needs to be sold in a comparatively short time. The over-production of the Kieffer could be greatly relieved by a more equitable distribution of the fruit in the domestic and foreign market season. It was shipped abroad in considerable numbers, with most encouraging results, for the first time in 1901. The Kieffer has not been successfully held in many storage houses. It sometimes discolors on the outside before it softens. At other times it decays at the core while still firm outside, while a further difficulty has been its rapid discoloration and deterioration on withdrawal. In fact so great have been the difficulties in the past that some

storage houses refused to accept Kieffer in 1901.

General Conclusions.—The following general conclusions may be drawn from the behavior of the pears in all lots stored in cold storage, up to date, February 10 :

1. A temperature of 32 prolonged the durability of the fruit in storage beyond a temperature of 36.

2. A wrapper prolonged the durability of the fruit in storage.

3. The Kieffers that were ripened in cold storage were apparently as good as the same fruit ripened in the ordinary manner.

4. The Kieffers that were taken out from a temperature of 32, if firm when withdrawn, kept in a temperature of 50 to 60 for two or three weeks without discoloration or loss of quality. From a temperature of 36 they did not keep more than ten days.

5. Discoloration at the core was due to delay in the storage of the fruit after it is picked, except that undeveloped Kieffers may be stored after ripening without subsequent discoloration. Wormy Kieffers discolor at the core in any treatment.

6. Discoloration of the skin was due to bad handling, i. e., rough picking, packing, or any other factor that causes bruising.

Kieffers in Storage.—It will be seen from observations which we have made that the principal troubles with the Kieffers in storage were due, primarily to their treatment before they reached the storage compartment. Our experiments indicate that the fruit should be picked when green, hard, graded well, stored immediately after picking, in a temperature not above 32 (and possibly as low as 31), and no serious difficulty may be expected from such treatment. Fruit growers should realize that the successful storing of the Kieffer depends as much upon them as upon the conditions in the storage house. Refrigeration will not make first quality fruit of seconds, nor

can it correct the evils of bad orchard handling. Successful refrigeration is possible only when both storage men and fruit growers understand the underlying principles of refrigeration and co-operate intelligently.

The Apple is the most important fruit that is stored in refrigeration, in fact it is stored in greater quantities than all other fruits combined. The following statement of the National Apple Shippers' Association, taken from a recent number of *COLD STORAGE*, gives a conception of the magnitude of the industry.

APPLES IN STORAGE ON DECEMBER 1.

	Barrels in Cold Storage	Barrels in Common Storage
1898.....	891,000	400,000
1899.....	1,518,750	634,000
1900.....	1,226,900	794,000
1901.....	1,771,200	138,000

1. The apples used in the experiments appear to keep best when picked just before they mature, i. e., when very firm and only fairly colored.

2. The fruit that was stored immediately after picking is keeping better than that in which there was delay before the fruit was placed in storage.

3. The fruit is keeping better in a temperature of 31 to 32 than in a temperature or 34 to 36.

4. The wrapped fruit is keeping better than the unwrapped fruit. It shows less shrinkage.

6. A temperature of 31 to 32 appears to retard the scald. The York Imperials in this temperature shows about 3 per cent., while in a temperature of 34 to 36 there is about 17 per cent. The Rhode Island Greenings show about 5 per cent., in the higher temperature.

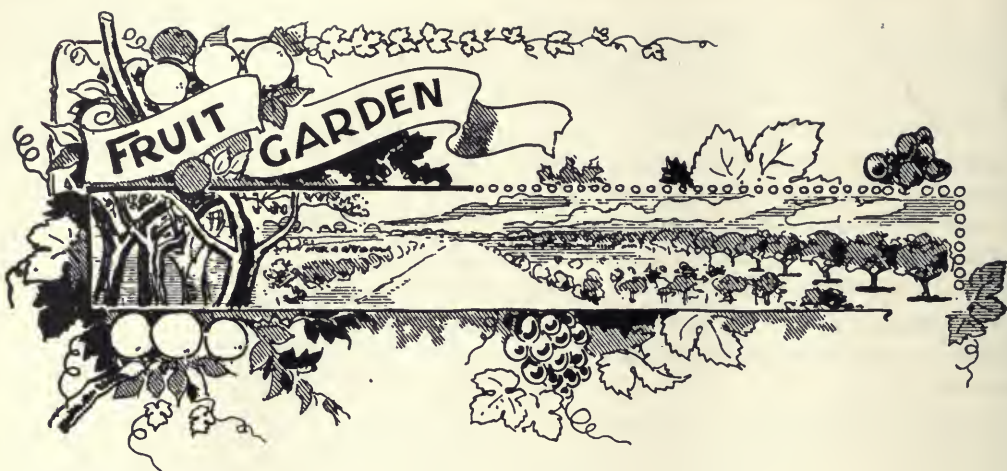
CURRANTS AS ORCHARD FILLERS

AN EASY CROP TO RAISE

CURRANTS are about the cheapest and easiest crop of fruit to produce, requiring very little time and labor as compared with many others, states American Gardening. For fillers, or what might be termed a catch crop, they are indispensable when grown between plum, pear, peach, cherry and quince trees. They can be grown in an orchard of any of these fruits without retarding or injuring the trees. When currants are fruited in this way it is merely a question of more manure or fertilizer. Every intelligent fruit grower will understand this at once. Under this system of intensive gardening you have a nice income from your currants, while your fruit trees are developing and getting ready for fruiting.

It depends entirely upon yourself as to how long these bushes will bear large, marketable fruit.

Remove the New Wood.—No matter how great a sacrifice it may seem, you should remove two-thirds of the new wood each season. Failing to do this you will soon have a lot of overgrown bushes on your hands, and the fruit will dwindle in size and be imperfect in many ways. On the other hand, if you prune judiciously, spray as often as it is necessary, manure well and cultivate thoroughly, you can keep your plantation of currants in perfect order for at least ten years, and one year with another, you will be well recompensed for your investment and labor.



LESSON ON LEAVES

BY

PROF. H. L. HUTT, B. S. A.

O. A. C., GUELPH, ONT.

TREES and shrubs may be divided into two classes, depending upon whether they retain or annually shed their leaves. Those which retain their leaves are evergreens, while those which shed their leaves are deciduous. In this country our commonest evergreens are the pines, spruces, cedars, etc., while all of our fruit trees are deciduous. In warmer climes, where the tropical fruits are grown, even the fruit trees, such as orange and lemon, are evergreens.

Leaves afford an interesting subject for study, not only because of their great variety, but because of their wonderful modifications of form to suit varied conditions. This part of the subject, however, we must leave the reader to study for himself. At present, we shall deal more particularly with a few of the most important functions which the leaves perform in the economy of plant growth.

THE STRUCTURE OF A LEAF

A leaf is usually made up of two principal parts, the broad expanded part called the **blade**; and the stalk which supports it, known as the **leaf-stalk** or **petiole**. The blade is one of Nature's adaptations for the purpose of exposing as much surface as possible to the action of sunlight, for although a leaf may be small in itself, the area exposed by the foliage of a large apple tree in full leaf may amount to several acres.

The petiole or leaf-stalk, is not always an essential part of the leaf, for in some cases it is absent, as in the Honeysuckle, in which the blade rests directly upon the branch.

If, for instance, we examine a maple leaf, it will be seen that the petiole divides at its upper end into a number of parts, and these divide again and again into smaller parts forming what are usually spoken of as the nerves or veins of the leaf. With the petiole, they make up the skeleton or framework

of the leaf, and are composed of woody fibre with a central pith similar to the woody parts of the stem and branches. They are in fact the farthest extensions of the branching of the tree, and convey the sap to the remotest parts of the leaf where it can be spread out and exposed to sunlight.

The spaces between the veins are made up of a soft, cellular substance, filled with minute chlorophyll granules which give to the leaf its green coloring matter. The whole structure is covered above and below with a thin transparent skin or epidermis, through which may be seen, when the leaf is placed under a microscope, numerous small openings called the stomata. Each stoma is an automatic valve by means of which the leaf performs its most important functions.

THE FUNCTIONS OF LEAVES

A careful study of all of the functions performed by the leaves and the chemical changes which take place in them would lead us farther afield than we have time at present to go. Those which are more directly dependent upon the care and management of the tree, it is important, however for us to consider.

THE TRANSPIRATION OF MOISTURE

The soil water which is taken up by the roots is to a great extent merely a carrying agent, and the greater portion of it has to be gotten rid of after it has brought the plant food from the soil to the leaves. This giving off of the water takes place through the stomata. It is this transpiration of water from the leaves which causes plants to wilt, when in a very hot sun or dry atmosphere, the direct cause of the wilting being that the leaves are giving off the moisture faster than the roots can take it up.

The stomata open and close according to the conditions surrounding them. In hot,

dry weather, particularly when it is windy, they are inclined to open and give off water very rapidly. Hence it is important during such seasons to have the soil, in which the plant is growing, well cultivated so that it may retain plenty of moisture where the roots can get at it.

As the roots absorb water and the leaves give it off, there must be an equilibrium between the roots and the leaves of the plant, if it is to maintain growth. Hence when trees are taken up and transplanted and the greater part of the root-system is destroyed, it is usually necessary to cut back the top to correspond with the roots left.

THE LEAVES ACT AS LUNGS

The leaves are often spoken of as the plant. They inhale carbonic acid gas and exhale oxygen, just the reverse of what takes place in the breathing of animals. In this respect, animal and plant life are complementary one to the other. As it is important for the health of animals that they have vigorous, strong lungs, so it is important for the growth of the plant that it has vigorous, healthy foliage. For this reason, it often becomes necessary to spray the foliage of trees, even when not bearing, where they are subject to the attacks of fungus diseases which develop in the foliage; for without healthy foliage, the tree will not make satisfactory growth.

Another important function of the leaves is to assimilate or make use of the plant food taken in from the soil and air. In this respect the leaves might also be called the digestive organs of the plant. The carbonic acid gas taken in by the leaves is combined with the sugar of the sap forming starch. This formation of starch is brought about in the chlorophyll granules by the action of sunlight. If the leaves do not get sufficient light, or if the foliage has been half eaten by insects, the plant will be starved to that extent.

CRITICISM ON THE ONTARIO SPY

OUR BEST FANCY WINTER APPLE—
HOW TO HANDLE FOR EXPORT

MR. P. J. Carey, fruit inspector, writing in the Sun, says:—In our talk at orchard Institute meetings I was sorry to have to discourage the planting of Spys and Kings, the Spy, because it is so long in coming into bearing and the King, because it is a shy bearer. The chief objection to the Spy can, however be overcome in a measure by top grafting ; but even when it is produced, it is not the most profitable for our export trade. Shippers have in fact, received more black eyes from the Spy than from any other variety, this being due to the fact that the apple is not suited to the rough usage it receives during transport on shipboard. "Yes," agreed Mr. Carey, in reply to a question, "the Spy is perhaps the most popular apple in the American market, but then the duty which stands in the way renders it practically impossible to ship any apples to the big cities of the United States".

But, while the Spy is not suited for shipment to England and is shut out of the American market, there is still, the Sun believes, a possibility that it will ere long prove the most profitable variety in Ontario, because, as Mr. Carey said, we shall ultimately find in our own country a market for first-class apples, quite as large as that now found in Great Britain. The development of the North West promises to go on at a rate of which at present we have no conception. If anything like 200,000 people go in there this year that will mark the beginning of an inrush for which we shall have to go back for a parallel, to the tide which spread over the American prairies half a century ago, and with this increased population in our North West will come an increasing demand for Ontario apples, and among these apples none better than the Spy. There is too, as Mr. Carey added, a large home market here in Ontario for the produce of Ontario apple orchards, but the cold storage facilities must be more fully developed in order to admit of the holding of fruit in good

condition for the late winter market, before this opening can be utilized to the greatest advantage. In this respect the Georgian Bay fruit growers are setting an example to the rest of the Province, in preparing to develop cold storage facilities on the co-operative plan.

As ordinarily handled the Northern Spy, no doubt, has justly earned the criticisms of our friend Mr. Carey ; it is we grant a great many years in coming into bearing as we have proved in an orchard now twenty years planted, which has only yielded two or three good crops ; but, now that that period is passed, we are convinced that it was worth waiting for, since it is yielding annual crops of magnificent fruit ; it is, we also grant, a difficult apple to export in perfect condition because of its tender skin, and while this may be an objection on the part of the careless fruit grower, who handles his fruit roughly and packs carelessly, it is one of the very incentives to its planting on the part of the enterprising fruit grower.

That the Spy is the finest general purpose winter apple in Ontario, both in beauty of appearance, and quality of flesh, is acknowledged by all who know it ; and it is most unfair to condemn its planting in these days when we are aiming at building up a reputation in the foreign markets for our best apples. The Baldwin and the Ben Davis may do for the careless shipper, but he who would build an enduring reputation for quality and beauty can succeed with the Spy better than any other apple grown in our province.

How to Handle Fancy Spys.—The writer speaks from personal experience, and not from "hearsay". In a sixty acre apple

orchard in full bearing, from which he is annually exporting to Great Britain and Germany in car lots, he has ten acres of Spy apples now in full bearing. These are harvested later than such apples as Baldwins and Greenings, and not until they have on their richest coloring and when their flesh is at its best stage of crisp, juicy texture. The smaller sizes, and the No. 2 grade are barreled in the orchard from the packing table but all the A No. 1 grade are sent into the fruit house and graded into uniform sizes, the smallest grade being $2\frac{1}{2}$ inch and the largest 3 inch, those below or above these sizes not being considered up to the grade.

This delicate variety is handled with the greatest care, wrapped in tissue paper, and packed in boxes weighing when filled, from forty to fifty pounds each. A padding of fine excelsior is laid in the bottom and top and also between the layers of fruit, thus entirely preventing the least marking of the fruit by the pressing, or by handling upon the journey. Packed in this way the Spy may be kept in cold storage, or shipped

around the world, and come out in perfect condition. In proof of this the writer has only to mention the magnificent Ontario Spys shown at Glasgow in the summer of 1901, which he had packed in cases as above described, in the fall of 1900. These were kept in cold storage until needed, and brought on the tables as required, and attracted so much attention that Mr. Robert Hamilton, who was one of the Canadians in charge, reported that he could have sold ten thousand bushel cases in the month of July at \$3.50 a case!!

Where the Canadian Spy is known in Great Britain, no other apple is wanted for a fancy trade. For three successive years, the writer has had a special enquiry for this apple from a dealer in Leeds: and one season finding the crop short, he asked to be allowed to substitute Kings and selected Baldwins in place of Spys, but would not consent, because, said he, I have built up my reputation on this apple, and I want no other for my special trade.

*IRRIGATION OF APPLES AND PEARS

A HAND book for the proper application of water has just been published by the Orange Judd Co. It is written by Lucius M. Wilcox, and this revised and enlarged edition seems to bring the whole matter quite up to date. In looking over the book we have made a selection which is just now of practical interest to fruit growers, being a portion of the chapter on Irrigation for the Orchard.

Apples.—This king of fruits may be irrigated in many ways, and, a liberal quantity

of water is advisable. We have noticed one thing about growing apples under irrigation. By giving them plenty of water when they are attaining full size, or are nearly full grown, they receive more sap and attain fully one-eighth more weight, or specific gravity, compared with similar fruit of the same size. The color of the apple is also greatly improved in this way, and it puts on a polish that could not be attained without irrigation. The characteristic of polishing nicely is noticed principally in the Ben Davis and Jonathan varieties. If the early spring season has been dry the orchard should be irrigated just as soon as the canals are

*Irrigation Farming: a guide book for the proper application of water in the production of crops.

carrying water. If no other circumstances arise it may be deemed advisable to irrigate again every month until the last of August, when water should be discontinued from all fruits. Young trees will take more water than older ones, and a wetting at the time the fruit buds are appearing is quite essential. Give no water at the time of blossoming. After the fruit is half grown it can be forced to greater size by copious irrigation. The apple attains one-tenth of its final size during the last month of maturity. Russian varieties have thick, leathery foliage which cannot readily transpire, and for this reason but very little water should be given them at any time.

Of course it must be understood that the management of an orchard in the fall must depend largely on the dryness of the season, the age and fruitage of the trees, as well as their variety and general condition. While young trees not yet in bearing, or those not carrying a load of fruit, may need no water after the 15th of August, it may be quite essential to give waterings to trees heavy in fruit to more thoroughly develop the fruit itself and aid in the picking. It has often been observed at harvest time that the apples do not come off easily and do not feel right in the hand. Under these circumstances to postpone the picking and irrigate the orchard may require four or five days'

time. In twelve hours there will be a noticeable difference; in thirty-six hours the apples will gain in color, plumpness and size. When picking is resumed the apples will come off nicely and be larger and more highly colored. The gain may be at least ten per cent. The last irrigation effects cherries, plums, and grapes as much or more than apples, and we always irrigate heavily while they are ripening. The keeping qualities are also better.

Pears.—This valuable fruit will succeed in most kinds of soil, but flourishes best in rich loamy, or heavy red clayish, or sandy soils. The latter is especially adapted to it if it carries the oxide of iron, an element quite common in many of the mountain districts of the far west. The best kinds to plant for permanent orchard are standard sorts budded on pear stock, which, if well cared for, should stand for two hundred years. The planting should be sixteen or twenty feet apart. Dwarf pears are best budded on the quince, although this practice forces their blooming period and places them in more imminent danger of spring frosts. Generally speaking the same amount of water is required as for the apple and plum, and the same general rules, particularly as to cultivation, should be followed. The fruit should never be allowed to become thoroughly ripe on the trees.

Mr. R. Cullis, Secretary West Durham Farmers' Institute, writes us of a successful orchard demonstration meeting held on 8th inst. at Camborne, in the orchard of Mr. Wm. Parsons. Messrs. E. Lick, of Oshawa, and T. J. Carey, of Cobourg, Dominion Fruit Inspectors, were the speakers. As a result of the meeting a local Fruit Growers' Association was organized,

to be known as the Township of Hamilton Local Fruit Growers' Association. The following officers were elected: *Pres.*—Mr. Thos. Davidson, Camborne; *Vice-Pres.*—Wm. S. Case, Cobourg; *Sec.-Treas.*—R. Cullis, Camborne. Nearly every one present joined the Association. An adjourned meeting of the Society will be held in Cobourg on June 10th at 2.30 p. m.



SEASONABLE NOTES FOR JULY

BY

WM. HUNT

O. A. C., GUELPH, ONT.

FLOWER GARDEN.—Constant surface stirring of the soil in flower beds or borders will not only destroy weed crops, but will also materially help the growth of all kinds of bedding plants. Deep stirring of the soil is not necessary, if the ground was properly prepared before planting. A very small three or four-toothed rake, or a light scuffle hoe are the best tools for this work, which should be done when the soil is fairly dry and before it has had time to crust over very hard on the surface.

Staking and Tying.—These operations are often left until the plants are badly damaged by wind or rain storms, or perhaps entirely ruined by not being attended to earlier. It is always a good plan to have stakes for such plants as dahlias, ricinus, etc., driven in near the plants requiring support. Many a fine plant has come to grief because a stake could not be found handily just when the plant needed tying.

In the matter of tying up plants always endeavor to stake and tie plants so that they are as natural looking as possible after the operation is performed. Avoid the close bunching process of tying that makes the plants look more like bundles of stems and foliage, than growing plants. Another point deserving attention when tying plants is to endeavor to place the stakes in such a position that they will be hidden from view as much as possible by the foliage. Use soft twine for tying purposes, so as to prevent as much as possible damage from friction, and use neat sizeable stakes.

Decayed Flowers.—These should be kept picked off regularly, unless required to remain on the plants to help produce seed. Decayed blossoms are not only unsightly, but also exhaust uselessly the vitality of the plant. In this respect do not forget that daily picking of sweet-pea blossoms, and not allowing them to go to seed, not only improves the size and depth of color of later



FIG. 2352. FREESIA.

blossoms, but also helps materially to extend the flowering period of the plants.

The Greenhouse.—If ferns and exotic plants occupy the greenhouse during the summer months, the glass must be heavily shaded. These plants will require plenty of water at the roots and a moist atmosphere maintained by daily syringing, as well as heavy sprinklings of water on the floor when the ventilators are closed. Where choice ferns and exotic plants are growing the ventilators should be closed an hour or two before the sun ceases to shine on the greenhouse.

Roses and Chrysanthemums.—If roses and chrysanthemums occupy the greenhouse, much more ventilation is necessary, and far less shading required than for ferns, etc. In fact the shading for both roses and chrysanthemums should be very light, as close shading induces a weak spindled growth that is not conducive to good flowering results. Roses and chrysanthemums should have liberal supplies of water at the roots and daily syringing on bright days. Pick every bud off the roses as soon as the bud

is formed, so that the whole strength of the plant can be used to produce a good stocky growth of wood.

Freesias.—These useful winter flowering bulbs should now be kept quite dry and dormant, until they are potted on. They can be left in the soil they were grown in, and the pots stood away in a dry cool shed, or the bulbs can be picked out from the soil and put in a pot or box with sufficient dry sand or earth thrown over them to keep them from getting too dry and shrivelled. In either case keep the bulbs quite dry, and in a cool place. A shelf in a shed is a good place for them. August and September are the best months for starting freesias into growth.

THE WINDOW GARDEN

Window-boxes form the most prominent feature for window decoration during the summer months. It is oftentimes a difficult matter to secure flowering plants that are suited for shaded positions on the north side of the house. Foliage plants and ferns can be easily selected for these positions, flowering plants in variety are not so easily ob-

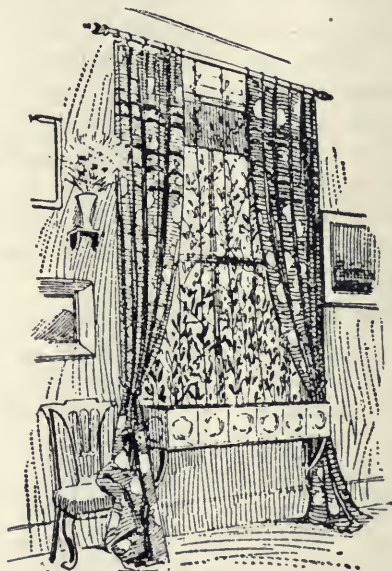


FIG. 2353. WINDOW GARDEN.



FIG. 2354. BEGONIA, WELTONIENSIS ALBA.

tained. Many varieties of summer flowering begonias can be had however that will give splendid results in windows or on verandahs where the sun shines for perhaps only an hour or two, morning and evening. Amongst the most effective and easily grown kinds is the pink flowering *Weltoniensis* begonia, also the white flowering variety *Weltoniensis alba* (Fig. 2354), the former being the most robust and easiest to grow of the two kinds. Being of a semi-tuberous nature both of them can be kept partially dormant during the winter, but must not be dried off completely in the same way that the tuberous varieties are.

Another good variety for summer flowering is the dwarf growing, white flowering begonia *Bruant* (Fig. 2355). This pretty little begonia can be easily kept during the winter, its bright glossy green foliage being most acceptable even when not brightened up with its ivory white blossoms. It must not be given as much water however during the winter as when it is in active growth in

summer time, The Begonias mentioned as bedding varieties in last month's journal are also good varieties for culture in windows, either as pot plants or in window boxes. These Begonias will be found to be quite an acquisition to the comparatively limited list of flowering plants suited for window boxes in shaded positions.

Geraniums for Winter.—This is a good time to commence preparing a stock of these ever popular and useful plants for winter flowering in the window.

It is quite possible that many readers of this journal have a favorite geranium plant that has become gaunt and unshapely in growth, similar to the one shown in the accompanying cut (Fig. 2356). Instead of planting it out in the border, as is often done to try and make a shapely plant of it before autumn, it would be far better to treat it as shown in Fig. 2357 by giving it a severe cutting back. If the growth of the plant is very soft and sappy the cutting back process should be deferred until the plant has been stood outside in the pot in a sunny position for the wood to harden a little. It can then be pruned back as shown in the cut, by pruning the growth back to within



FIG. 2355. BEGONIA, BRUANT.



FIG. 2356.

GERANIUM BEFORE BEING CUT BACK.

a few joints of the hard growth of the stem. After the pruning back, the plant should be put in a partially shaded position near a building or fence. Very little water should be given it until it shows signs of growth but the soil should never become really dust dry. As soon as growth commences, shake the plant out of the earth and repot it into a size smaller pot in rather sandy soil. Plunge the pot up to the rim in sand or coal ashes, and water well once, after that water only when the soil shows signs of dryness. In about five or six weeks the plant will require a larger pot, probably two sizes larger than what it was potted back into before. When it has become established in this size pot it will probably be time to take it into the window where it should give good flowering results. Old geranium plants give

good results if treated in this way, much better oftentimes than young plants taken from cuttings. The cuttings however taken from the plant when cut back should be placed in sand, either in a pot or shallow box. These will also make nice little plants by autumn for the window. The tips of the shoots should be taken for the cuttings, five or six inches being a good length for the cutting. By treating overgrown, gaunt specimens of geraniums in the way I have attempted to describe, many plants that gave good flowering results last winter can be had in even better shape and condition than during last season. It is useless and unnatural to expect even the all-enduring geranium to flower and grow continuously the whole year round. This pruning back and partial resting process, as described, gives a good shapely plant as well as allowing it a partial rest which all plants require in a greater or lesser degree to be successful.



FIG. 2357.

GERANIUM AFTER BEING CUT BACK.

THE KNACK OF BOUQUET MAKING

HINTS AS TO HARMONY OF
COLOR, ARRANGEMENT, ETC.

BY

EBEN E. REXFORD

PERSONS who are not particularly successful at bouquet-making generally assert that there is a "knack" about it which not everybody can hope to discover. I admit that some persons seem to have born with them the knowledge of just what kinds of flowers to use, just how many and just how to put them together. They do not have to learn these things. But that does not prove that there is really any "knack" about the matter. It only goes to show that some persons naturally have good taste—an intuitive taste, we may call it—while others must cultivate taste, or acquire it, in order to do successful work at bouquet-making. Most persons who have a good eye for color and a sense of harmonious proportion may become able, by a little practice, to do creditable work along this line.

The first thing to do is to learn what colors go well together, and the only way to learn this is by experience. You may read about "complementary colors" and all that, but to know all about them you must see them together. There must be an object lesson, in order to get the idea firmly fixed in your mind by the effect harmonious colors have on the eye. Therefore, try all colors together and find out which you can safely use in combination. These experiments will soon convince you that the line can not be drawn at positive colors. Intermediate shades and modifications of the primary colors must receive quite as much consideration as the primary colors themselves.

Then the principle of contrast must be taken into consideration. There are contrasts and contrasts, and not all contrasts are harmonious ones, you will find. Scarlet and yellow afford striking contrast, but not always a harmonious one. Blue and orange are not discordant, and their contrast is very decided, but it is not a pleasant combination by any means, except in rare instances where strong, high colors are depended upon to produce certain results which we would not care for under ordinary conditions. In bouquet-making we find that the most satisfactory contrasts are those by which the use of a subordinate color heightens the effect of the predominating color. We may often secure this result by using two shades of the same color.

One color or shade must be subordinate to the other in importance. They can not have equal value in the combination without detracting from or entirely spoiling the effect aimed at. Suppose, for illustration of the idea, we have some maroon and white dahlias to arrange. If we have just as many of one color as of the other, our bouquet will not please us. But if we have but two or three white flowers among a dozen dark ones, the effect is pleasing, because the contrast afforded by the small amount of white used emphasizes the darker color work effectively. We see beauties in it that we would not see if there was no contrast. Reverse the positions and let white predominate. The few dark flowers used make the purity and loveliness of the white

ones stand out prominently, as it would not if there was nothing to afford contrast. By these contrasts we secure a sort of background, dark or light, as the case may be, against which to display the predominating color and bring out the full beauty of it. In every arrangement of flowers there should be some such contrast. Sometimes the foliage of the flowers used will supply all that is needed, but generally the flowers themselves should supply it.

As a general thing, we use a great many more flowers than there is any need of in our floral arrangements. We forget or overlook, if we have learned the fact, that strength is not so much in quantity as in quality. An excess of quantity may produce a weak result. The artist, who paints a picture of flowers which you would be glad to hang upon the wall of your parlor, does not crowd his canvas with color. He depends upon the effective distribution of it and the use of contrast to bring out the decorative idea fully. I have seen pictures

which seemed one great glow of color, and the careless observer would naturally conclude that the luminous effect was secured by the mass of color used. But analyze the picture and you discovered that the result was secured by a really small amount of color. A few roses scattered considerably against a background of green foliage will give the effect of a great wealth of color, because all the artistic possibilities have been realized by the combination. Try combinations by which this principle is illustrated and you will be surprised to see what strong and satisfactory effects are secured by the use of a small amount of material. You will learn from it how to "make a little go a long way."

And bear in mind the fact that most flowers are most effective when kept by themselves. There may be harmony in color without harmony in habit. There are very few flowers which do not suffer by being massed with others.

—*Home and Flowers.*

ATTRACTIVE CACTI-IV

GRAFTING THE CACTUS—HOW
IT IS DONE—FANTASTIC FORMS

BY

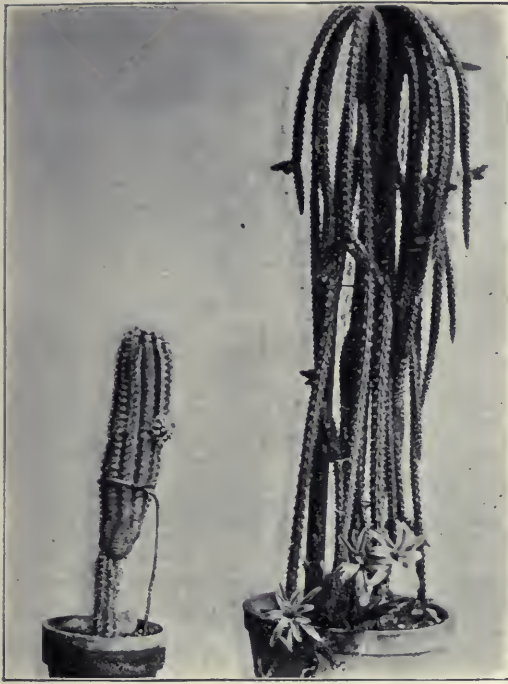
J. H. CALLANDER

WOODSTOCK, ONT.

SOME of the Cacti, which make most desirable specimens when of good size, are so very slow in growth on their own roots that a collector would get tired waiting for them. This is one of the principal reasons for grafting cacti, although it is also done for other reasons. Better effects are obtained by having a trailing or drooping part grafted on a tall stout stem of cereus, as thus, a speci-

men can be set on a table without having to hang over the sides. Then other curious effects are obtained by putting a globular part on a cereus stock, when, in a very short time the scion is full grown, and blooming freely. To improve the bloom and get it sooner is another object in grafting.

The process is not at all hard, and any one who has some good strong rooted cut-



a

b

FIG. 2358.

LACE CACTUS (a) AND RAT TAIL CACTUS (b)
Both grafted on *Cereus Colubrinus*.

tings of *cereus nycticalus*, *grandiflorus*, or *colubrinus*, and has some slow grower like the *epiphyllums*, *cristates*, or the globular sorts, can do as well at producing these curiosities as an old hand at the business. First, be sure that both the scion and stock are in a good healthy, growing condition, preferably in the spring. For instance, if it is desired to use a stock of *C. colubrinus*, and put a top on it of *C. flagelliformis* or rat-tail cactus, select a stock about two feet high, and take two nice pieces of new growth of the rat-tail, about three inches in length. Cut the top square off the stock

and split it down the centre about an inch. Then, with a sharp knife cut the scions to a wedge shape, and insert in the split top of the stock. To hold them in place you only require to run a long cactus spine through both stock and scion, and tie a string firmly around the stock to keep the cut edges together. For a few days set in a partially shady place, and do not wet the graft when watering. Growth will very quickly commence, and you will be surprised at how fast a large head will form on the tall stock. The illustration shows what can be done with this combination in only two years. The large head, which was in bloom at the time the photo was taken, nearly all grew in one season.

The crab cactus is grafted in the same way, but the best stock to use is the *pereskia*, which forces a fast growth, and is better when old than a *cereus* stock. The globular sorts can be put on in any way that seems to suit best, either set flat on top of the stock, care being taken to have the cut edges about the same size, or by wedging either the stock or scion, and inserting into the other, always fastening the two together as firmly as possible with spines, and by tying string around to hold the edges together till they unite.

The small specimen shown in the engraving is only one season's growth of *echinocereus coespitosus* or lace cactus on *C. colubrinus*. The scion, when put on, was only about the size of a walnut, but grew so fast it looked as though the skin must burst. A specimen of *C. flagelliformis cristata* or *opuntia tessellata cristata*, makes a very odd plant when grafted, and assumes all sorts of fantastic forms in coxcomb style.



The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

ORCHARD MEETING NOTES

BY THE SECRETARY

WE had a call last week from Mr. McNeill and Mr. Carey on their return from their series of orchard meetings. They report excellent meetings, and in spite of the pressure of work at this busy season from thirty to one hundred eager fruit growers attended each meeting. "The most pleasing feature of these meetings," said Mr. McNeill, "was the intelligent interest taken in the discussions back and forward of each disease, defect and insect that might be found in passing through the orchard. There the principles of orchard cultivation would be taken up and specific instructions given in the practice of

pruning. This kind of instruction has double the value of that given at indoor meetings in that one cannot only hear but actually see the things done."

Mr. Carey took up the apple question from the packer's and shipper's standpoint, explaining how the fruit could best be handled from the time it was taken from the tree until it was packed and labelled or left the grower's farm. He pointed out that the salableness of fruit is effected by being picked too early or too late in the season. It is better, said Mr. Carey, to harvest the fruit in two or at most three weeks while it is in the pink of condition, than to have the picking

season extended from the first of September until the last of November and get too green and over ripe fruit. One should study his land and locality and then get the right varieties. We want a large vigorous productive tree, an apple of a red color, and one that on being bruised will dry instead of rot. A shipping apple of this kind will rarely be classed as "slack" and will give a minimum amount of waste in packing. On being asked what variety he would recommend as having those characteristics, Mr. Carey said "From twelve years experience as a shipper, I like the Phoenix, they handle well; as a packer, I always liked to get into a Phoenix orchard."

Secretary Mitchell, of the Port Elgin branch of the Lake Huron Fruit Growers' Association, reports lively interest in the orchard meetings in his section and sends a list of new memberships.

W. W. Hilborn of the Essex Experiment Station, writes: I believe these orchard meetings do much good to help farmers to adopt more careful methods of orchard treatment. In travelling over the country, one sees much need of this, for neglected orchards are everywhere apparent. Many orchards get no trimming but the browsing of the cows, and it is little reason therefore, that the trees

are dying out and the investment becoming an unprofitable one. The time has come when to grow apples successfully, we must give proper cultivation, and annual pruning, and spraying. There is no other line of fruit growing today that requires so much attention as the apple, and few crops that can be more easily injured by improper methods of cultivation. Just in this connection one sees the value of such instruction as that given in orchards now by Mr. McNeill. If we had more men doing work like Mr. McNeill, I think apple culture would receive more attention. I believe the future for apple culture in Canada is brighter than for any other fruit we grow, if we can induce the growers to give as much thought to their apple orchards as they do to other farm crops.

Trenton.—Mr. Walter Dempsey, Director of the O. F. G. A. for District (4) reports a good meeting in Mr. Frazer's orchard on the 12th ult. Mr. Lick was present and gave a very interesting talk on spraying which led to a good discussion. Mr. Lick answered questions and spoke briefly on cultivation, thinning fruit, cover crops, etc. There were twenty-one fruit growers present, coming about twelve miles each way from Trenton. All took part in the discussions.

NOTES FROM OUR SECRETARIES

COLLATED BY THE SECRETARY

Mr. Frank Metcalf, Secretary of the Lake Huron Fruit Growers' Association reports that their association is attracting considerable attention among the farmers. On Monday, May 12th, an orchard demonstration meeting was held in the orchard of Mr. A. W. Sloan. Mr. Alex. McNeil, of Walk-

erville, Dominion Fruit Inspector, and Mr. A. E. Sherrington, of the Experimental Fruit Station at Walkerton, gave practical demonstration in spraying and in talks on general orchard management.

We had a call at our office this week from Mr. Elmer Lick, after finishing his series of

orchard meetings in the Lake Ontario, Bay of Quinte and St. Lawrence valley regions. Mr. Lick reports good meetings. In some cases in spite of very inclement weather for orchard demonstration work, and at this very busy season of the year when large crowds are not to be expected, the attendance at many of the meetings was a surprise to the speakers. Farmers seem very anxious for this definite, practical sort of information. They want information on the actual work and practice of fruit growing, by men who have made a success right in this line of business. Farmers are beginning to realize that the orchard is worthy of care and attention, that proper spraying and pruning will ensure a good quality of fruit, and that manuring and cultivation of the orchard will pay a profit the same as for other crops. In short, farmers all over the province are becoming alive to the possibilities of apple growing.

In nearly every district local Fruit Growers' Associations are being formed. At Camborne Mr. Lick was able to assist in the organization of a branch known as the Hamilton Township Association. The officers are, Thos. Davidson, president; Stephen Kerr, vice-president, and R. Cullis, secretary-treasurer. This is likely to be a live organization, and to be useful in advancing the fruit interests of this part of the country.

At Belleville, Mr. Lick reports an especially good meeting. It was held in the orchard of Mr. J. K. McCarger. A very lively interest was evinced, and many questions were asked and answered. Here, too, a branch organization was formed, with J. K. McCarger as president, J. R. Anderson, vice-president, and Francis S. Wallbridge, secretary-treasurer.

At Maitland the meeting was very encouraging, "due largely," Mr. Lick remarked, "to the earnest and able assistance of Mr. Harold Jones. Mr. Jones has

a large and constantly increasing apple orchard, which is an object lesson that makes the best educator along the lines of apple growing that can be given in any neighborhood."

Word comes from Mr. A. E. Sherrington, of the Walkerton Fruit Experiment Station, of good meetings in the Georgian Bay District. At Port Elgin and Teeswater there was great interest shown in the work. At the latter place a branch association was formed, with a paid membership of twenty-four. Mr. Sherrington writes: "These object lessons in the orchard are just what the people want. As the counties of Bruce and Huron are large, in order to reach all our people, we are going to organize branch associations in every locality. I am calling a meeting in Lucknow on June 11th, and am asking each branch association to send two delegates in order that we may organize the District Association, and arrange our work for the future. I am advising every grower to grade and pack his own fruit, and that we may have a uniform brand on our fruit I am suggesting that we adopt the following:

Lake Huron Fruit Growers' Association.
Grown and Packed by.....
Variety

"At the present time we nearly all have no system of grading and packing, and this does not inspire confidence among the growers, packers, shippers and consumers."

We also have the following letter from Mr. Sherrington—"I attended a meeting of the Teeswater branch of the Fruit Growers' Association yesterday, and we had a grand meeting, nearly all the members being present. Some that were not members became so before leaving, and every one was much interested in the work. After organizing them I addressed the meeting on 'Orchard Cultivation.' There is a marked improvement in the orchards throughout the coun-

try this season. I think fully one third of the orchards are now being cultivated. Enclosed you will find a list of officers and members of the Teeswater Branch."

The Walnut Grove planted at Walkerton by Mr. Shaw was visited by Mr. T. H. Race of Mitchel and the writer, on the occasion of a recent meeting of the Walkerton Horticultural Society. The grove is now about twenty years planted; trees are beautiful in form, the trunks are straight and clear of limbs about twenty feet high; and at the base they would measure from 8 to 10 inches in diameter. Mr. Race was interested to know the object in planting such a large grove of walnut trees. "Was it for the lumber," he said "which twenty five or thirty years ago was worth \$75 a thousand; or for nuts which would surely sell at a good price in the large cities, or was it purely for ornament?"

Mr. Sherrington on who also accompanied us thought that little had been done with them for any purpose. The double row had robbed the ground of its fertility for a width of at least thirty feet from the fence, and the ill effects were noticeable upon the apple trees nearest them.

To settle the questions satisfactorily we appealed to Mr. Shaw himself for some definite information.

"How long have these trees been planted?" we inquired.

"The two rows of walnut trees" said Mr. Shaw "running north and south along a part of the west side of my grounds grew from nuts planted there in the autumn of 1882, the same time that the apple orchard growing east of them was planted. You would observe a row of maple trees had also been planted west of these two rows, but most of the maples were killed by caterpillars two years since. These caterpillars

did not eat the leaves of the walnut trees."

"These trees were planted thus — — —"

so that each tree east and west was not opposite each other. There are in the two rows of walnut trees 250 trees, besides you might notice many others in the grounds. The nuts were planted 12 feet apart, 3 or 4 together but only one was left to grow, the others were removed when 2 years old and replanted."

"What object had you in planting this grove?"

"My object in planting these three rows of trees one maple and two walnut, was to form a wind break to protect the orchard from the southwest and west in this country. You would likely observe that towards the south, where these rows reach higher and drier ground, they were about $\frac{1}{3}$ smaller in diameter than where they grew on low moist land.

"What use do you make of the nuts."

"Nuts have grown on these trees for several years but not in great abundance, no doubt my having the lower limbs removed so as to increase the height of the trees prevented this. Several bushels grew on them last year, some of which I planted and gave the rest to my neighbors to plant, and one gentleman has planted two or three bushels of them. I have made no effort to ascertain the value of the wood of these trees as they now stand. I think these walnut trees are as rapid growers as our hard maples and make as good shade trees, and they are proof against caterpillars."

Georgetown.—A Horticultural Society, with very bright prospects of usefulness, was formed in Georgetown on the 2nd of May, and a good membership secured. The first public meeting will be held this fall.

Question Drawer

Hollyhock Rust.

1296. SIR,—Enclosed herewith I send you a leaf from one of my hollyhocks affected with a blight or rust that is doing my collection much damage. It is fastened so closely to the leaf that it cannot be washed off. Can you tell me how I may rid my plants of this? I hope it is not a recurrence of the pest that caused the growing of this fine flower to be abandoned for a time some years ago.

Mr. Clement's hollyhocks are affected with the Hollyhock Rust, a disease which originated in Chili, but first appeared as a pest in Australia. It entered Europe soon afterwards through France, and is to be found now wherever the hollyhock is cultivated. The peculiar feature of this rust is that only one spore form is known—the teleutospore. This appears on the leaves as pale brown warts. These spores will germinate at once, so the disease is continued throughout the season. It is likely also that the teleutospore form may pass the winter in the resting stage. The common Round-Leaf Mallow is also attacked by the same rust; and, if hollyhocks are to be free from this rust, the wild mallow must be looked after carefully.

There are two methods of treating this rust, 1st, by spraying with Bordeaux mixture two or three times during the growing season; and, 2d, by collecting and burning the fading and falling leaves, and not allowing them to decay on the ground under the plants. It is possible for every hollyhock enthusiast who fears the attack of this rust to use both of these methods, as they are simple and effective.

O. A. C. Guelph. W. LOCHHEAD.

Effect of Cold Storage on Fruit.

1297. SIR,—Does cold storage spoil the quality of fruit? Is ice more natural than chemical cold storage? I found that chemical cold storage

changed my Flemish Beauty pears into fruit no better than turnips: they would not ripen when brought out.

Montreal.

R. BRODIE.

The Flemish Beauty pear does not ripen well if gathered before it is mature. In this respect it differs materially from the Bartlett which will ripen even if immature when harvested. The Flemish Beauty, on the other hand, wilts and becomes leathery and insipid, if gathered too soon. Probably this explains the difficulty with those referred to by Mr. Brodie, and not the cold storage at all.

To Spray or not to Spray.

1298. SIR,—I enclose you the following clipping from a Buffalo paper which seems to be very much opposed to spraying.

"As last year was an off year with the apple crop, it is believed that the yield this year will be a large one. For several years past hundreds of farmers in Niagara and Orleans counties have persistently practised spraying the trees. Now, those who were the most ardent believers in the benefit derived, declare themselves opposed to it, and they say that this year they will take chances and let nature take its course.

Two years ago it was observed when there was such a large crop that the orchards that were not sprayed bore the best fruit and last year the result was the same."

I intended purchasing a machine but such reports as these are very discouraging. I should like to have your opinion.

Southend, Ont.

GEORGE SLADE.

A newspaper report such as this has no weight with us whatever. There is no more sense in it than if one were to give up insuring his house because for several years he had noticed that his neighbor's house, which was not insured, had not been burned. There are seasons when scab, aphid and canker worm, do not trouble us, and in such seasons the unsprayed orchard yields as good fruit as the sprayed one, but nevertheless it pays to be on the safe side.

Snow Ball Leaves Withering.

1299. SIR,—I am sending under separate cover a sample of Snow Ball leaves. The whole tree seems to be withering up and dying. I sprayed it twice with Paris green. Can you give cause and remedy?

Walkerton.

JAS. WHITEHEAD.

This beautiful shrub is suffering most severely, in all parts of the country, from a kind of aphid which gathers in great numbers on the under side of the leaves and sucks out the juice, causing them to wither

and dry up. We have referred the matter to a specialist, and in the meantime would advise spraying with kerosene emulsion. In spring, when the buds are bursting, a thorough drenching of the whole tree from the ground up to the ends of the limbs with crude petroleum emulsion or with a strong solution of whale oil soap, would probably destroy the young aphidæ, just as they are hatching out.

Open Letters

INDUSTRIAL EXHIBITION, WOLVERHAMPTON, ENG.

CANADIAN APPLES—BRIGHT PROSPECTS— A LETTER FROM THE SUPERINTENDENT

A. McD. ALLAN

ALTHOUGH during an Atlantic voyage there is time which might be profitably expended in the study of horticulture in theory, there is but a limited space for practice! It was, however, interesting to find daily upon the dining tables fine specimens of Baldwin and Spy apples and Drouard pears from the cold storage chamber in the ship. But the few days on ship were spent pleasantly or otherwise according to the condition of each passenger. Some taking exercise at "shuffle board" or "ring toss" on deck, others engaged in trying to walk as if quite at home upon the rocking ocean liner, a few reading and some otherwise engaged possibly in exercise more violent than agreeable! But landing day soon comes and ship's company parts never to meet again in all probability.

A short run from Liverpool brings me to the site of the exhibition at Wolverhampton, a town of about 7,000 inhabitants, situated

conveniently for the residents in the Midland counties.

The exhibition is held in part of a beautiful public park, and occupies probably about fifteen acres. The park, like all English parks, is well planted with a great variety of trees and plants, contains a chain of lakes in which are fine specimens of the swan, duck, water hen, etc. The walks, which are numerous and cut out in easy sweeps and curves, are made of a reddish fine gravel which, when rolled, becomes almost as smooth as our cement sidewalks.

The exhibition grounds are a marvel of neatness and cleanliness; buildings are good and well filled with exhibits practical rather than fancy. It is pretty generally acknowledged that the Canadian building is not only possessed of the most attractive exhibits in the grounds, but also the most practical.

Our display of fresh fruit from storage is

confined chiefly to Baldwin, Spy, Ben Davis, King, Phoenix, Seek, Fameuse, Wealthy, Fallawater, Mann, Swazie, Golden Russet, Nonpareil, Grimes, Canada Red, Scot's Red, Stark, Peck's Pleasant, Pewaukee, Spitzenberg and Drouard and Vicar pears. Arrangements had not been completed in time to make a selection from the crop of last year for this exhibition, hence the government had to take these fruits from some packed in Montreal storage, and although they are not by any means such as we would select for this purpose, people generally are delighted and astonished at their excellent appearance, especially when they read the printed notices "Canadian fruit picked in Sept. and Oct., 1901, and kept in cool air." Besides this display we have four handsome octagonal shaped stands covered with many specimens of fruits and vegetables preserved in fluid, and these are admired greatly.

Our system of cold storage leaves little to desire, and it is evident that all specimens that were perfect when packed are still in a good state of preservation, and even the small, spotted and wormy specimens carried well and most of them landed in the same order as when packed. These of course have been discarded as unfit for exhibition and only the best specimens used. The "Wilson" case was used, each specimen being wrapped in tissue covered with light brown paper. Greening, Ribston and Blue Pearmain were quite unfit for the tables, but of the list I name above we have fairly good specimens under all the circumstances. I look forward with interest for a selection from this year's crop of all such as can be used before closing day, and feel sure it will pay to use every care in selecting and forwarding. It is chiefly with such a display that we can dispel the still too prevalent idea the ordinary Britisher has of the coldness of our climate, and this is certainly

the only point that stands in the way of a much larger emigration to our shores.

I made several enquiries regarding the effect of our "Marks Act" upon the trade and am pleased to hear that some at all events have remarked an improvement in packing. I have shown the act to many dealers and all express themselves strongly in favor of it, and state openly that if the act is carried into full effect it will do more than anything else to establish confidence between shipper and buyer. It will undoubtedly take time to do this as confidence has been rudely shaken in the past, and only persistence in honest packing can place us where every honest shipper should be. Possibly if boxes instead of barrels were used we could regain confidence more quickly. The Tasmanian apples are all shipped in this way, and, although generally a softer fruit than ours, arrive in prime condition.

I find that harm is done by shippers sending a variety of apple under different names. The retailer here only knows a few kinds, and does not attach much value to any outside of what he knows. It is therefore very important that nomenclature should be studied and that inspectors see most carefully to correctness in this respect so as to accustom the buyers here to find varieties properly classified from all sections of Canada and from all shippers. It is only in this way we can hope to establish a market value for other kinds besides Baldwin, Spy, Greening, King, etc. At present markets here only recognise value in about seven or eight varieties which come forward properly named from all shippers. All others have to take a secondary place or come in with "culls."

If time permits I shall examine all the varieties coming into Britain from Tasmania and give you the results of my humble judgment in another letter.

British Columbia, a Competitor in Winnipeg.

SIR.—I am just in receipt of a letter from Peachland B. C., in which the writer is most enthusiastic over the future of that country. He says that last year the Cold Stream Ranch (Lord Aberdeen's) produced, from one hundred acres, apples which

sold for thirteen thousand dollars! I think that Ontario fruit growers should be aroused to a sense of the danger of this western province stealing away from them their best market.

J. J. PHILP,
Ottawa, Fruit Inspector.

Our Affiliated Societies

Hamilton.—The Spectator flower garden competition has been finally closed, all the entries having been tabulated and arranged in order and the list handed over to the committee of the City Improvement and Horticultural societies. Nearly 100 boys and girls are working in the junior competition and over 50 adults are interested in the contest for grown-up people. The entries are from all parts of the city, and the judges will have a good deal of traveling to do in making their several inspections during the season. These inspections will be unannounced, and it is expected that there will be at least three of them before the end of the season and before the awards are made. In the meantime the contestants are all working to make sure that their gardens are the very best in the whole city and that the first prize is coming their way.

Paris.—The Horticultural Society has interested itself in the improvement of the school grounds, and especially in the planting of a large collection of trees and shrubs, in order that the children may become familiar with the varieties. A gentleman who has travelled much, has expressed great appreciation of the work, and says that no where else has he seen so excellent a collection of varieties planted on school grounds. The society furnished elms, walnuts, basswoods, horse chestnuts, white oaks, hickory, white birch, cut leaf and negundo maples, Colorado blue spruces and tulip trees in sufficient number to surround the large school grounds, and besides this there is a large collection of flowering and ornamental shrubs, spiraeas, deutzias, weigelas, syringas, hydrangeas, flowering thorns, forsythias, and a variety of native shrubs, which have been planted to give the best effects.

Our Book Table

AMERICAN HORTICULTURAL MANUAL, PART I.—Comprising the leading principles and practices connected with the propagation, culture and improvement of fruits, nuts, ornamental trees, shrubs and plants in the United States and Canada, by Prof. J. L. Budd, of Ames, Iowa. Cloth, \$1.50.

The plan of this work seems to be somewhat after that of Downing's *Fruits and Fruit Trees of America*, except that the part giving cultural methods is published in a separate volume, and the Systematic Descriptions will follow as Part II in the same manner. That many changes and advances have been made in horticulture since Downing's work was published, is evident from the many appendices which are being made to that valuable work, and we welcome this work of Prof. Budd's as an effort to bring up to date the Pomology of North America. With such excellent manuals at hand, no fruit grower needs to be ignorant of either the best varieties to plant, or the best methods of cultivation.

IRRIGATION FARMING, a hand book for the proper application of water in the production of crops, by L. M. Wilcox, editor of "Field and Farm." Revised and enlarged edition. Illustrated 1902.

The chapter on "Irrigation of the Garden" will alone commend the book to market gardeners, and that on "Irrigation of the Orchard" will make it indispensable to the many fruit growers in Ontario who have suffered serious loss of late years from long continued drouths, and conse-

quent small sized fruit. The principal chapters treat very fully of the advantages of irrigation; relations of soils to irrigation; treatment of alkali, water supply; canal construction; reservoirs and ponds; pipes for irrigation purposes; flumes and their structure; duty and measurement of water; methods of applying water; irrigation of field crops, the garden, the orchard, the vineyard and small fruits; all about alfalfa; windmills and pumps; devices, appliances and contrivances; sub-irrigation and subsoiling; sewage and drainage; irrigation in humid regions; common law of irrigation; glossary of irrigation terms, etc. The volume is profusely, handsomely and practically illustrated.

COMMISSIONER OF HIGH WAYS.—Sixth Annual Report, 1901, by W. A. Campbell.

WESTERN FAIR.—Prize List, London, Canada, September 12th to 20th, 1902.

NOVA SCOTIA.—Annual Report of the Fruit Growers' Association, 1902.

ONTARIO FRUIT EXHIBIT AT PAN AMERICAN, 1901, W. H. Bunting, of St. Catharines, Supt.. This report has been published as an appendix to the report of the Ontario Fruit Growers' Association. Mr. Bunting first gives a capital summary of such fruits in connection with the exhibits as are of the most practical importance to our fruit growers; then follows an official list of awards; a list of collective exhibits with dates; and a complete alphabetical list of all varieties of fruits shown.

ONTARIO FRUIT CROP REPORT FOR 1902.

COUNTIES.	APPLES.					PEARS.			
	Summer	Baldwin	Spy	King	Greening	Bartlett	Duchess	Aufere	Other kinds.
ESSEX. W. W. Hilborn, Leamington.	under good	under good	under good		average.	over good	over good	over	under
WENTWORTH. M. Petit, Winona.		under good	average good	over good	over good	under good	over good	average good	
A. W. Peart, Burlington.	over good	over good	over good	average good	over good	under good	average good	under good	
LINCOLN. L. Woolverton, Grimsby.	over good	under good	average good	over good	over good	under good	over good		
S. M. Culp, Beamsville		under good	average good	over good	over good	under good	over good		
W. H. Bunting, St. Catharines.	over good	under good	under good	over good	over good	under good	average		average
SIMCOE. C. L. Stephens, Orillia.	over good	most varieties under average.							
G. C. Caston, Craighurst.	over good	most varieties about average.							
W. W. Cox, Collingwood.	average good	average good	average good	average good	average good	All	varieties	an average.	
GREY. J. G. Mitchell, Clarksburg.	average good	under good	average good	over good	over good	average good	average good	average good	
BRUCE. A. E. Sherrington, Walkerton.	average good					All	varieties	average	crop.
ONTARIO. R. L. Huggard, Whitby.	average good		over good	over good	over good	average good	under good	under good	over good
NORTHUMBERLAND. H. J. Snelgrove, Cobourg.	over good	under good	over good	over good		All varieties	an average crop.		
PRINCE EDWARD CO.— W. H. Dempsey, Trenton. Harold Jones, Maitland	over good	under good	over good	over good		All varieties	an average crop.		
		Most	varieties	over	average.				
VICTORIA. Thos. Beall, Lindsay.		Most	varieties	average.		average good	average good		
RENFREW. R. B. Whyte, Ottawa.	average good	Most	varieties	average.					
ALGOMA. Chas. Young, Richard's Landing.			most varieties grown are over.				Varieties grown average.		

Key—QUANTITY denoted by average. QUALITY by Good.
 over “ Fair.
 undr “ Bad.

PEACHES.					PLUMS.					GRAPES.	
Alexander.	Triumph	Crawford	Elberta	Smock	Bradshaw	Washingt'n	Yellow Egg	Burbank	Lombard	Concord	Rogers
over good	over				under					over	
over good	over good	average good	over good	over good	over good	average bad	average good	over good	over good		
over good	over	average good	over good	over good	average good	average bad	average good	under good	under good	over good	average good
over good	over good	under good	average good	over good	average good	over bad	over good				
									over	over good	average good
over good	over good	under		over good							
					Most varieties	under.					
					Most varieties	under.					
	All varieties	average.									
	All varieties	average.			over good	over good	over good		over good		
					over good	over good	over good	under good			
					Most varieties	under.					
					Most varieties	under;	rotting				
					Most varieties	under.					
					Not much	grown.					under.
					Most varieties	average.					

Notes on Fruit Crop Reports.

W. W. HILLBORN:—Very few grape vines about Leamington old enough to bear fruit; nearly all were killed at the same time the peach trees were destroyed.

M. PETTIT:—All kinds of fruit trees are looking healthy and free from fungus. There are fewer insect enemies than usual.

A. W. PEART:—Conditions have been unfavorable for fungi, and the canker worm and tent caterpillar are being kept pretty well under control.

W. H. BUNTING:—The most serious effects of the frosts of May 9th and 10th are found in the Early Crawford peach orchards; where far removed from water, nearly all crops destroyed. A large percentage of the fruit buds were destroyed. Insects and fungi very little; the tent caterpillar has appeared in unsprayed orchards; the peach curl is not serious; apples are particularly fine and clear of scab; and altogether the fruit crop should be fairly satisfactory this season if a proper distribution of it can be made.

STANLEY SPILLET:—A small mite attacked the pear leaves, causing the leaf to have a blistered appearance; currants last year were attacked by the same or a similar insect, which works from the under side of the leaf. I found dusting with powder of Paris green and lime beneficial. The gooseberry worm made its appearance ten days ago in myriads, but one application of twelve ounces of Paris green to 45 gals. of water, with milk of lime destroyed them. Gooseberry mildew has not yet appeared.

I. G. MITCHELL:—No trouble whatever from insects or fungi so far.

W. W. COX:—I am surprised the pears and apples look so clean and good, for it rains everytime we spray. We had it wet and cold all spring, and I am surprised that so much fruit has set.

H. J. SNELGROVE:—There is a marked absence of noxious insects and fungi this season. June bugs destroyed the buds and blossoms of the plum trees in many places. In Northumberland County, horticulturists have found the Fameuse apple stung with an insect which appears in effect to resemble the curculio. This pest has not been noticed in this district before and is a mystery. Spraying was never practised so generally as this season.

W. H. DEMPSEY:—Insects have not been as numerous as in other seasons. Fungus is growing fast on some varieties of fruit.

H. JONES:—Fameuse, which is largely grown here, has set a good crop, and are well formed and growing rapidly. Fungi is showing where spraying has been omitted. Very few insects, but the Tussock moth is appearing in large numbers in some orchards.

THOS BEALL:—The outlook for fruit growers is rather gloomy this season. Pear bloom first upon May 17th; from that date until June 14th, 28 days, rain fell on twenty-one days. Consequently the apple crops in this section will be much under the average. Grape vines are healthy but late, and I think they will not ripen their fruit this season.

CHARLES YOUNG:—A cold, wet spring, but fruit trees have set twice the fruit they ought to mature. If the crops throughout Ontario can be judged by that in St. Joseph Island, there will be \$5.00 a barrel paid this season. I have no hesitation in saying that all Japan plums are harder than European, and even harder than some of the Americans

BOOKS FOR FRUIT GROWERS.

Orders for any of the following books, accompanied by the Cash may be sent to Editor Canadian Horticulturist, Grimsby, and the books will be forwarded at prices noted, postpaid.

FRUIT, FLOWERS, ETC.

Apple Culture, Field Notes on. Bailey.	\$0.75
Bulbs and Tuberous Rooted Plants. C. L. Allen.	1.50
Bush Fruits. Prof. A. Card.	1.50
Chrysanthemum Culture. Morton. Cloth.	1.00
Chrysanthemums, How to Grow. . . . .	.25
Cider Makers' Handbook. Trowbridge.	1.00
Cranberries, Cape Cod. James Webb. Paper. . . . .	.40
Cranberry Culture. White.	1.00
Crops, Spraying. Clarence M. Weed. . . . .	.25
Dahlia, The. Lawrence K. Peacock. . . . .	.30
Floriculture, Practical. Peter Henderson.	1.50
Florida Fruits, and How to Raise Them. Harcourt.	1.25
Flower Garden, Beautiful. Matthews. . . . .	.40
Fruit Culturist, American. Thomas.	2.50
Fruit Grower, Practical. Maynard. . . . .	.50
Fruit Harvesting, Marketing, etc. F. A. Waugh.	1.00
Fruit, The. P. Barry.	1.50
Fumigation Methods. Willis G. Johnson.	1.50
Fungi and Fungicides. Clarence M. Weed. Cloth \$1.00, paper. . . . .	.50
Garden Making. Prof. L. H. Bailey.	1.00
Grape Culturist. A. S. Fuller.	1.50
Grape Grower's Guide. Charlton. . . . .	.75
Grape Growing and Wine Making, American. Prof. George Husmann.	1.50
Greenhouse Construction. Prof. L. R. Taft.	1.50
Greenhouse Management. Prof. L. R. Taft.	1.50
Horticulture, Annals of. Prof. L. H. Bailey.	1.00
Horticulturist's Rule Book. Prof. L. H. Bailey. . . . .	.75
House Plants and How to Succeed with Them. Lizzie Page Hillhouse.	1.00
Insects Injurious to Fruits. Saunders.	2.00
Irrigation Farming. L. M. Wilcox.	2.00
New Horticulture, The. H. A. Stringfellow.	1.00
Nursery Book. Prof. L. H. Bailey. Cloth.	1.00
Nut Culturist, The. Andrew S. Fuller.	1.50
Peach Culture. Fulton. Revised edition.	1.00
Pear Culture for Profit. Quinn. New and revised edition.	1.00
Plants, Handbook of. Peter Henderson. New enlarged edition.	3.00
Plants, Propagation of. A. S. Fuller.	1.50
Plants, Your. James Sheehan. . . . .	.40
Plums and Plum Culture. F. A. Waugh.	1.50
Principles of Fruit Growing. Prof. L. H. Bailey.	1.25
Pruning Book, The. Prof. L. H. Bailey.	1.50
Quince Culture. W. W. Meech.	1.00
Rose, The. Its Cultivation, Varieties, etc. H. B. Ellwanger.	1.25
Rose, Parsons on the.	1.00
Small Fruit Culturist. A. S. Fuller.	1.00
Spraying of Plants, The. E. G. Lodeman.	1.00
Strawberry, The A B C of the. T. B. Terry A. I. Root. . . . .	.50
Strawberry Culturist. A. S. Fuller. Illustrated. . . . .	.25
Vineyard at Lakeview. My. . . . .	.50
Violet Culture, Commercial. B. T. Galloway.	1.50
Water Garden, The. William Tricker.	2.00
Window Flower Garden. Heinrich.50

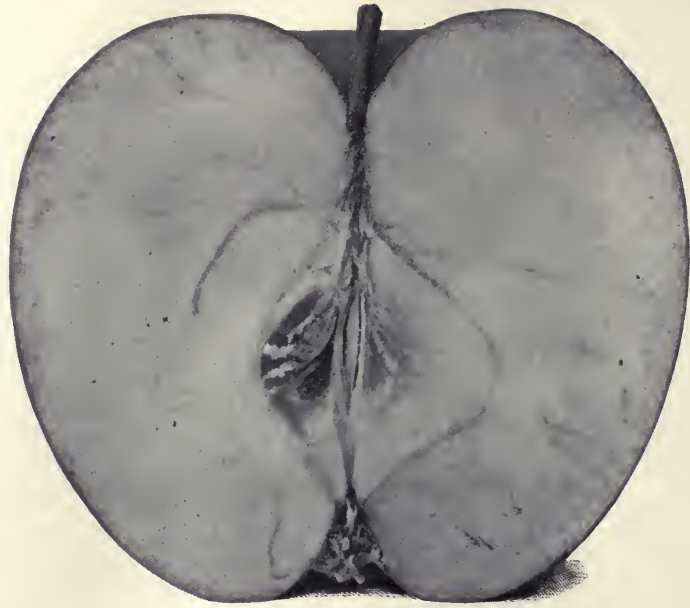


FIG. 2359. STARK APPLE.

THE CANADIAN HORTICULTURIST

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VOLUME XXV



NUMBER 8

THE STARK APPLE

A COMPETITOR OF THE BEN DAVIS—AS
GOOD A SHIPPER—BETTER IN QUALITY

RECENTLY we received the following letter from Mr. A. C. Sabeau, Ross-way, Nova Scotia :

SIR,—I mail you an apple for name. It was grown in a neighboring orchard under the name of Stark. The tree is a strong grower and of spreading habit. Please identify the apple and if convenient please give a description of the Stark in the Canadian Horticulturist. Is this a true Stark ; is it a fair sample compared with those grown in Ontario?

The apple came to hand in good condition, and it is a fair sample of Stark as grown here. We do not know of the variety being much grown in Ontario, except by Mr. W. H. Dempsey, of Trenton, who has a good many bearing trees, the fruit of which he often shows at our winter meetings. Mr. Dempsey considers it one of the best commercial apples and one which compares favorably with the Ben Davis for profit, while at the same time surpasses it somewhat in quality. He finds it an excellent shipper, not easily showing bruises, and a good seller in the foreign market.

The frontispiece is made from a photograph of a Stark apple grown by Mr. Dempsey in 1898, which we find in our collection. The following is a description of it.

Origin.—Ohio.

Tree.—A stout, vigorous grower, productive.

Fruit.—Large, $3\frac{1}{2}$ x $3\frac{1}{2}$ inches; form roundish, slightly one sided, somewhat conical ; skin covered with shades and splashes of light and dark red on a greenish yellow ground, thickly sprinkled with brown dots ; stalk one-half inch long, stout, in a small cavity of medium depth, calyx large, half closed in a large shallow plaited basin ; flesh yellowish white ; texture a little coarse, firm and moderately juicy ; flavor, mild subacid, good.

Season.—January to May.

Quality.—Dessert, poor ; cooking, good.

Value.—Home market, fair ; foreign market, good.

In response to our inquiries regarding the behavior of the Stark apple in Ontario, we have received the following :

W. H. Dempsey, Trenton, Ont.:—"The tree has made very rapid growth ; the foliage is large, dark green in color and somewhat subject to fungus ; very productive every alternate year ; the fruit is large, clean, dull in color and not so attractive in appearance

as many other varieties, and it is a first-class commercial apple only for this fault. In some localities it has been shipped under the name of Baldwin."

Sam Nesbitt, Brighton, Ont.:—"In respect to the Stark apple I have always found it to be an exceedingly good shipper for export, as it apparently stood the passage over better than most any other apple in the months of February and March. There was one other point in its favor and that is that it never discoloured. Whether this will hold good after it has been out as long a time as Baldwins is a question that only the future will decide. The tree is a most prolific bearer, and the only objection that I have to the apples (and the same thing applies to buyers in the United Kingdom), is

the fact that they are not the right shade of red, making it difficult for the people who sell fancy apples to polish them and make the display that is necessary to catch the eye of the consumer.

Harold Jones, Maitland :—"In this section, where Spys and Baldwins cannot be successfully grown, the Stark has come to stay. It is perfectly hardy and a heavy bearer. The fruit keeps well into April. The color is a little dull, but the size and other good qualities mentioned places it near the top of the list as a desirable winter apple for the St. Lawrence valley.

"When attending the Fruit Institute meetings last winter I included Stark in a short list of best winters for planting in the commercial orchard."

AMMONIA-COPPER CARBONATE

BY

PROF. L. LOCHHEAD

O. A. C., GUELPH, ONT.

THIS fungicide is a valuable one at certain times because it will not discolor the fruit as Bordeaux does. It is neither as effective nor as cheap as Bordeaux, hence is seldom used in the ordinary spraying operations of the orchard. The proportions recommended in the preparation of this solution are as follows :

Copper-Carbonate 5 ozs.
Ammonia, about 3 pints (just enough to dissolve the Copper-Carbonate).

Water.....50 gallons.

Or, if we want to make up a smaller amount, say 10 gallons, use the following :

Copper-Carbonate 1 oz.
Ammonia.....a little more than $\frac{1}{2}$ pint.
Water.....10 gallons.

The best way to prepare the solution is to make a thin paste of the carbonate first of all, and then dilute one-third of the ammonia with seven or eight times its volume of water, and pour this over the paste of car-

bonate. Then the mixture should be stirred vigorously and allowed to stand until the undissolved portion of the carbonate has settled to the bottom. The clear liquor is then poured off. To the undissolved portion of carbonate add a second, one-third of the ammonia diluted as before with seven or eight times its volume of water. The mixture is again stirred and allowed to settle. When the clear liquid is again poured off, the remaining undissolved portion of carbonate may be treated with the remainder of the ammonia. In this way the carbonate is all brought into solution, which is then made up to the required strength. Rain water should be used, else a heavy cloudy precipitate may be formed, which is often mistaken for undissolved copper-carbonate. The solution is of a clear, light blue color and will not injure even the most tender fruits.

Notes and Comments

THE RED ASTRACHAN APPLE

THIS beautiful apple was introduced into England from Sweden in 1816, and since the Early Harvest has become so badly affected with scab, the Astrachan has of late been largely planted in Ontario as an early summer apple. The tree grows to be a large size, and is very productive; one at Maplehurst, forty years planted, gave a yield of ten barrels in 1895, which is not unusual, so that when prices are good this apple is very remunerative. The quality is only fair, and very tart; but the large size of the fruit, and its deep crimson color, often covered with a thin whitish bloom, makes it very salable.

During the last four years New York State and Ontario have been producing this apple in such quantity that after the first two or three pickings the price has been very low and we have been compelled to seek for a distant market. The apple is so tender that it is impossible to land it in the British markets in good condition except by cold storage, held at a temperature of about 33° F., a condition which it has hitherto



FIG. 2360. RED ASTRACHAN APPLE.

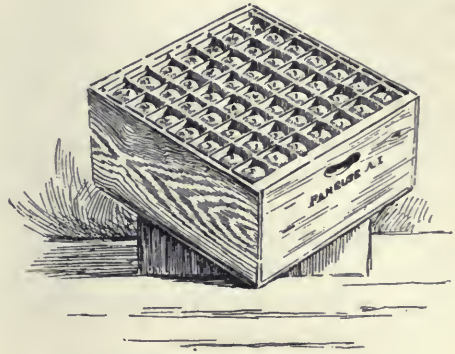


FIG. 2361. COCHRAN FRUIT CASE.

been difficult to ensure. A special officer, however, has been charged with this work by the Hon. Sidney Fisher, and we hope for complete success during the coming season.

A MAGNIFICENT CROP OF ASTRACHANS

NEVER before has the promise of this variety been so fine as at present. One hundred and twenty large trees of it at Maplehurst are almost breaking down with the weight of clean, beautiful fruit, and all the finest are destined for export. They will be packed in cases with fillers, similar to the Cochran Case (Fig. 2361), only smaller, and weighing about 40 lbs. each. Each apple will have its own separate compartment, and all the apples in a case will be selected to one size. Astrachans will go in about three sizes in all, viz.: $2\frac{1}{4}$, $2\frac{1}{2}$ and $2\frac{3}{4}$ inches in diameter. The cases cost about 20 cents each, and four of them will hold about the same quantity as an apple barrel. Several shippers will join us in making up car-lots of these tender apples, beginning early in August.

GOOD MARKETS AT HOME IF ONLY ACCESSIBLE

IT is astonishing what quantities of fruit can be sold right at home, in our own Ontario, if only some scheme of easier distribution were in operation. Our province is full of villages where no fruit is offered, and yet where not only the villages, but the farmers about, would be most eager to purchase it. May we not hope that the extension of the electric trolley, and perhaps the automobile freight wagon will by and by help us to reach all these country sections and wonderfully help the commercial fruit grower to dispose of his fruit crop to advantage, without the great risk of loss attending distant shipments.

"I have a special method of my own of selling my Red Astrachans," said Mr. Wilmoughby, of Beamsville; "I have an acquaintance with the retail trade in some of the northern towns, and I send my teams direct to the stores with them, and get the very best price for them, with no expenses for freight and commission to be subtracted. In the year 1896 for example, I sold 1,000 baskets of Astrachan apples in this way, a large part of which averaged me 50 cents a basket, and that is better than you can do by exporting them."

CHANCES FOR EXPORT OF FRUIT

MR. JOSEPH CHEAL, F. R. H. S., of Crawley, Sussex, England, a horticultural author and practical expert in gardening and fruit growing, called on us the 2nd of July. He expressed himself as particularly interested in the conditions for commercial fruit growing afforded by our country. Unfortunately for English fruit growers, much better rates were allowed for carriage of Canadian fruit, on the English railways, than for that which is home grown, but in spite of this discouragement there are many large commercial orchards in Great Britain. The present sea-

son is a most depressing one to the English fruit growers, for most unfavorable weather has prevailed, and supplies of apples, pears and plums will be very short.

Mr. Alexander McNeill, of Ottawa, who came in company with Mr. Cheal, reports failures of our fruit crop in several important parts of Ontario. There are scarcely any peaches in Essex, for the orchards were all cleaned out in the winter of 1898, and the newly set trees are not yet in bearing. Thousands of acres however, are being planted to peaches in Essex, so that in a year or two there will be immense quantities produced. The apple is very poor in quality in many parts of Northern Ontario, owing to prevalence of apple scab, which has been developed by excessive wet weather. Both leaves and fruit are blackened by this fungus in some places.

Mr. C. W. VanDuzer said, "I doubt the wisdom of trying to export fruit under the present conditions of transportation; the risk of loss is too great as things are, and I think I can do best at home."

"The Dominion Government," said Mr. McKinnon, "should buy fruit for experimental shipments, and have a packing house where the grading and packing should be done after the most approved fashion, and the work should be carried on until the most complete success is attained. If the Department of Agriculture, with all its means and influence, is afraid to undertake the risk, how can private shippers be expected to enter upon this business. I should like to know, said he, how it is that the temperature is not more quickly brought down in cold storage after the steamer leaves port. One of the thermographs showed that it was three days after sailing before the temperature was reduced to 40° F.!"

"Well," said Alex. McNeill, "this is work which I, as acting chief of the fruit division, will undertake to look after this

season. If the shippers will put up the fruit, I will have a careful oversight of it from the time it leaves the orchard until it is safely stored on shipboard, and Mr. W. A. McKinnon will meet it on arrival in Great Britain, so I think we ought to succeed this season."

SHORTENING-IN PRUNING

PRACTICAL experience in fruit growing has brought about some very radical changes in our views of orchard pruning. At one time our theory was: "Pruning is a thrust at the vitality of the tree, and the less of it the better," but now we are convinced this notion is entirely erroneous. We find the unpruned apple orchards void of fruit, even in this year of enormous fruitage; fruit spurs are stunted with dense shade, and produce nothing, while the tree itself is wasting energy in trying to thin out its own wood, and is choked with half dead and weak growing branches; while those trees which have been carefully pruned each year, are carrying loads of fine fruit, on vigorous wood.

ANNUAL CROPS THE RESULT

"I SHORTEN-IN all my apple trees every year," said Mr. Brennan. "Here is a row of Spys and Baldwins which produce fruit every year. The secret is in the pruning and thinning. That tree is forty years old, and I do not intend to allow it to grow any larger, but will cut it back every spring, to encourage young wood growth, and this young growth is the bearing wood of the following year. I treat plum and pear trees just the same way. I was led to prune as I do by the success of the renewal system in pruning grapes. I argued that if this method applied to grapes why not to other fruits?"

When do you prune?

Mostly in early spring. My aim is to produce plenty of young vigorous wood

every year, and then I expect good fruit on it the following year. I reduce the amount of bearing wood that I may always have plenty that is fresh and vigorous.

Do you manure heavily?

Yes, I give a heavy annual dressing of ashes and bone dust, and couple with this clean and constant cultivation until August.

For a long time this Journal has been advocating the thinning of fruit, both to save the vigor of the tree and also to secure fine fruit; but never until now, have we found an orchardist carrying out the practice in a whole orchard. No wonder Mr. Brennan succeeds in making as much money off his fifteen acres as many a man does off his one hundred.

THINNING PEACHES

MR. BRENNAN says he finds the Alexander peach one of his most profitable varieties. Of course it is inclined to overbear and consequently to be small and worthless, but he prevents this by two methods of thinning. The first is by pruning. He shortens the peach wood every spring, never allowing the tree to grow beyond a certain size. This method not only thins out a portion of the bearing wood, but encourages a certain amount of new wood growth for the following year's fruitage. It also develops young growth from the ground up, so that he has no waste, barren wood, and his whole tree is within easy reach for thinning, spraying and fruit harvesting. One tree was pointed out which was fifteen years planted. That tree, said he, will never be allowed to grow any taller or spread any wider. The trees in the orchard are only twelve feet apart each way, and yet by his method of shortening back all vigorous growth every spring, they have abundance of room.

The second method is by removing a portion of the young fruit in June. Walking

through his Alexander orchard on the 28th of June, we found the ground literally covered with young fruit. "People," said Mr. Brennan, "are calling me a fool to waste my fruit like this, but I have learned by experience that thinning pays."

What portion do you take off?

Well, from those overloaded Alexanders, fully one-half. Here is a tree from which I took 1700 peaches on the 26th of June. The tree could never carry that quantity to perfection. Why, 100 peaches, well grown, would fill a twelve quart basket, and that tree was carrying enough peaches to fill over 30 twelve quart baskets! while eight or ten baskets is all it could possibly mature, to any size.

OVERCROPPING

THIS principle applies equally to all fruits. If the tree overbears in one season, it cannot recover itself in time to produce a crop the year following, so that apples, pears and plums all need similar thinning of the fruit and similar shortening of the branches. "By this system of shortening," said he, "I get fruit every year from Spys, Kings and Baldwins, because I always encourage a certain amount of young wood growth, even in a season of heavy bearing, and this produces fruit the succeeding year."

The following from the Journal of Horticulture, England, goes to establish Mr. Brennan's method:

"In the whole gardening practice there is no greater mistake than that of overcropping. It is bad in every department, but worst of all with fruit, for not only are the trees incommoded during one season, and prevented from giving good fruit, but they are often seriously checked for another year, a more important point even than the other. The effects upon peaches and nectarines are very marked. The trees are called upon to produce about twice as many stones as are

necessary and this takes far more out of them than the production of the edible part or flesh.

But the strain upon the trees is so great that even the small amount of flesh upon the fruit is not worth anything. It is poor in flavor, and the fruits usually drop before they are properly ripe. Instead then, of having, say a hundred fine luscious peaches, or highly flavored nectarines, upon any given tree, we have, if the fruit is not properly thinned, perhaps double that number, and out of all, not a score of fruits that one could possibly send to a nobleman's table or a high class fruiterer's shop.

Apples on small trees are often badly treated in this way. With large orchard trees there is a great difficulty in thinning, and without a doubt, this combined with the let alone principle on which the trees are treated, is responsible for their often bearing once in two years. But with small trees there is no necessity for this. The fruits can mostly be thinned by hand from the ground or from a short pair of steps, and the increased value of the produce is out of all proportion greater than the trouble involved.

Even small and bush fruits may with advantage have attention in this way. Gooseberries, currants and even strawberries, unless there is a good demand for cooking fruit, should be well thinned. It is just now that the result of not thinning is most apparent, and I would ask any thinking producer to have a look round the nearest fruit plantation to him. In nine cases out of ten he will find this season's trees overburdened with small and comparatively useless fruit, that with judicious thinning might have been useful and profitable to the grower.

EARLY TOMATOES PROFITABLE

I FIND my early tomatoes about my most paying crop, said Mr. Wm. Armstrong of Queenston. I have made a business of

growing my own plants for early fruit for the last five years, with such success that now I set annually from 12,000 to 15,000 plants.

It was a delightful visit to Mr. Armstrong's home, on the 29th of June; it is situated on the bank of the Niagara River and his place is known as Riverside Fruit Farm.

How early do you ripen your first tomatoes? we enquired.

Usually by the first of July and sometimes sooner.

What is your favorite variety?

I prefer the Atlantic Prize to any other variety. It is flat, roundish, not too large, and excellent for slicing up for table use. I make it a special point to carefully select the seed from the finest specimens each year for my own planting, so that my strain of Atlantic Prize tomatoes is much better than any which can be bought under that name. Ignatum I find too large and too shy in bearing for profit.

PROFIT IN PLUMS

Do you consider plums profitable?

I do. Come and see my orchard for yourself. Mr. Armstrong showed us through an acre of land planted chiefly with Niagara and Washington plum trees heavily laden with fruit. It was fenced in and contained some fowls, which, he said, accounts for the fact that no curculio can be found in it. These, said Mr. Armstrong, are in my opinion the best commercial varieties. True, Washington is somewhat tender in flesh, but I have no trouble sending it to a near market like Toronto in perfect condition. Our Toronto boats leave at 7 and 11 o'clock a. m. and by shipping them the same day they are gathered, they reach Toronto by boat in perfect condition.

One Niagara tree about ten years planted, Mr. Armstrong estimated, would yield fifteen baskets of plums; surely it is difficult to estimate the cash value of such a tree!

Peaches, grapes, strawberries, plums and tomatoes, seem to be Mr. Armstrong's specialties, and in the latter we know of no one who excels him. He is surrounded by the fruit farms of men whose names are familiar, as for example, Carl E. Fisher, secretary of the Niagara Peninsula Fruit Growers' Association; Major Sheppard, the Farmers' Institute lecturer; and Mr. Vrooman, one of the early settlers of Queenston. In location it is most picturesque, with the Toronto boats in full view in old Niagara river, and the cliff rising up gradually in close proximity, surmounted by the famous monument to Sir Isaac Brock.

SUCCESS WITH PLUMS

THE Lombard is an enormous cropper, and this is the great fault with it, because the fruit is consequently small, and, growing in such clusters, is very subject to rot. If thinning is needed with any fruit it is surely needed in the case of the Lombard, and that with no stinted hand, for in this way alone can we succeed in producing such fruit as will command remunerative prices.

One of the finest young plum orchards we have seen belongs to Mr. George Davis, Beamsville, who took great pride in showing us what a magnificent load of Lombards the trees were carrying. There were 200 trees per acre, from five to eight years planted on clay loam, and such immense loads of fruit are seldom seen in a whole orchard. Mr. Davis said he had been wishing for curculio to come along and thin out his Lombards and save him the work, which he could see was positively necessary to secure fruit of any size. "I manure heavily," said he, "and I think that, in part, accounts for the enormous yield. I give a load of barn manure to every seven or eight trees, or about thirty tons an acre, and this I repeat every year. The result is evident in the wonderful thrift of the trees."

"I would not plant Lombards for profit," said Alex. Glass of Jordan, the well known originator of the Glass plum. "In my orchard of 800 trees I have only eight or ten trees of Lombard. I count it the poorest plum I grow."

What are your most profitable varieties?

"The Prince of Wales I count my first for profit; it is the best for all purposes. My choice of six best kinds for the commercial orchard is:—Prince of Wales, Goliath, Bradshaw, Coe and Reine Claude.

"It is strange," said Ira VanDuzer, a prominent fruit grower of Winona, "that this year there is a general failure in many plum sections of Glass, Quackenbos and Columbia varieties, which by the way very much resemble each other. On the other hand Bradshaw and German prune are giving a most exceptional yield."

MAIN CROP STRAWBERRIES

"GIVEN the right soil," said Mr. E. B. Stevenson, our strawberry experimenter, who is now located at Jordan Station, "no fruit is more profitable than the strawberry. Look at the tremendous rows of fruit on these rows of Clyde, a variety that cannot be surpassed for productiveness, where there is enough moisture in the soil. As a rule it is far more productive than the Williams, except on light, dry soils, but of course it is not as firm for the long shipments. The Williams is largely grown for market, but, in my opinion, it is inferior to Saunders, which I would place first for main crop; this latter is a Canadian berry, large, bright, firm, and of good quality. It ripens all over, and is just as good a shipper as Williams."

What is the best late berry?

Well here is one which was introduced by J. H. Hale, the eminent peach grower. He says it is the latest berry on earth, and catalogues the plants at \$1.00 each! He has christened it Hales 11.59 P. M. You see it is not yet (June 20), beginning to

ripen, and Michel is nearly over. However it is not the only late berry; J. H. Black, of New Jersey, has been sending out some "pedigree stock," as he calls it, among others a variety called the Joe which is probably as late as Hales.

FANCY BERRIES

Have you any fancy berry for the amateur excelling the Jessie?

Well yes, I would say that either the Woolverton, or the New York is quite as desirable in the home garden, though of course Jessie is excellent in quality. The Marshall is an excellent berry too for the amateur; it needs rich, moist soil to do well, and it is usually almost as profitable for market growers as the Clyde. It is almost as early as Michel. A new berry from Michigan is one of the most promising of this year's introductions, being wonderfully large and productive. It is called Uncle Jim.

A full report on strawberries by Mr. Stevenson, will be published in the next annual report of the Ontario Fruit Stations.

RAPID INCREASE OF STRAWBERRY PLANTS

Speaking in The Sun of the rapidity with which a large strawberry plantation may be developed from a small beginning, Prof. Hutt, of the O. A. C., said: "People hardly realize how soon a very considerable area of strawberries can be developed from the experimental lots sent out from the college. Let me give you an illustration: Last year we set out a lot of strawberries of different varieties at the college grounds, for the purpose of seeing to what extent these would increase. The result was astonishing. The number of new plants developed from a single parent stem in one season on the average was—for the different varieties named—as follows: Sadie, 100; Ruby 85; Standard, 53; No Name, 51; Burt, 48; Buster, 47; Warfield, 42; William Belt, 41; Clyde, 38;

Glen Mary, 37 ; Wesley, 36 ; Van Deman and Fountain, 32 each ; Irene and Haverland, 31 ; Anna Kennedy, 30 ; Jucunda, 23. Lumping together the results with all these standards, it was found that the average number of new plants developed from each parent was 49. It does not take long to work into a strawberry plantation at that rate, does it? There is to be remembered, also, the fact that while it is quite a common thing to have failures with plants sent from a distance, it is a rare thing to have failure in replanting from your own parent stock."

POSSIBLE YIELD OF STRAWBERRIES

The wretchedly small yields obtained by some strawberry growers are due either to a too dry sandy soil or poor cultivation. The immense yields that have been sometimes taken from small plantations, prove what great possibilities lie within our reach in the growing of this most popular fruit. The following statement concerning the yield of this fruit would be ridiculed by some were it not made by Prof. Macoun, whose veracity no one doubts. He says in the Maritime Farmer :

"It is possible to grow 10,000 quarts of strawberries on an acre of land in one season. At the Central Experimental Farm on a small plot the yield has been as high as at the rate of 13,934 quart boxes per acre. The average yield obtained however is from 5,000 to 6,000 boxes per acre, but the higher yields are something to work for. Further details regarding the culture of strawberries are published in the Experimental Farm's reports and bulletins. More than 350 varieties have been tested at Ottawa, of which the following, after having been given a thorough trial, have proven the best : P=pistillate or imperfect flowers. B=Bisexual or perfect flowers :

Warfield, P.	Early	For market.
Beder Wood, B. " "		Good pollinizer. Productive.
Glen Mary, B.	Medium	For home market.
Greenville, P.	" "	Home use or home market.

Haverland, P.	Medium	Market.
Bubach, P.	" "	Home use or market.
Williams, B.	" "	Market. •
Buster, P.	Late	Home use or market.

Howard's No. 41
P. " " Market.

"In addition to the above, Marshall, B, William Belt, B, Nick Ohmer, B, and Brandywine, B, are excellent for home use but are not as certain to yield well. Clyde, B, is a heavy yielding berry some years, but is uncertain, as it suffers badly in dry hot weather."

CHERRIES AND CHERRY BIRDS

THE Board of Control of our fruit stations met at Maplehurst on the 5th of July. The new varieties of Duke cherries were of especial interest to the chairman, Dr. James Mills. There were five varieties noted down as suitable to keep up a succession for the market, and carrying immense loads of fruit for their age, viz. in order of ripening :—May Duke, Royal Duke, California Advance. Late Duke and Louis Philippe, the first of which is over long before the latter begins ripening. These Dukes are a class of cherries which are a mean between the sweet and the sour cherries, and most desirable for all household uses. The peculiar upright habit and the close and continuous clustering of the fruit upon the underside of the long upright branches, at once distinguish the trees from those of other classes. One special variety of this class, the Reine Hortense, was especially admired because of its immense size, and excellent flavor, but it is not as productive as the others.

I have had great trouble with cherry birds this season, said Mr. Orr. I have shot two hundred and fifty waxwings and in spite of me they have eaten up all my Early Purple cherries. That variety, we remarked, is the first cherry of the season and it is especially tender and tempting to the birds ; we have

concluded that the commercial cherry grower needs to plant the firmer varieties, which are not subject to their ravages.

"I question," said Mr. W. N. Hutt, "the wisdom of shooting those waxwings, indeed the legality of it. I believe they are insectivorous birds, and friends of the fruit grower, and should be protected. Surely some other means of protecting the cherries could be adopted, and the lives of these birds preserved."

"I have always read," said Mr. Orr, "that cherries succeed best on sandy loam; but that is contrary to my experience. I have planted Early Purple and Windsor on both sand and clay, and I have found the trees much more productive on clay, healthier and longer lived."

FEEDING BIRDS ON CHERRIES

MR. GEORGE F. POWELL says he plants a quantity of the early varieties, sweet cherries, purposely for the birds to eat, especially such varieties as Coe's Transparent, Gov. Wood and May Duke. These trees, he says in Rural New Yorker, are given up entirely to the birds.

I have made it a practice in planting cherry orchards to put in a quantity of trees

of the early varieties of sweet cherries, such as Coe's Transparent, Gov. Wood and May Duke. We never pick them and never allow a bird to be frightened from the trees. They live upon these, and by the time our more valuable cherries, such as Black Tartarian, Black Eagle, Napoleon and Windsor are ripe we have no trouble from the robins. There will not be even two per cent. of these fine cherries picked or damaged by the birds. If every one would make it a point to put in a few extra trees of these early, juicy, sweet cherries, they would have little trouble with their more valuable varieties. Rather than kill off the birds I would plant cherries and give them the entire crop. It is one of the great drawbacks that we have so few birds inhabiting our orchards, in consequence of which we are forced to carry out the expensive process of spraying, without which comparatively little fruit of value could be produced. It is a great mistake on the part of fruit growers to kill off the birds, and I find that it not only economical to plant cherry trees for them, but I find that it brings larger numbers to my place, and they are very helpful in keeping down many insects that are not destroyed by spraying.

THE MAPLE AS A SHADE TREE

A LETTER FROM ALEX. M'NEILL, OF WALKERVILLE

SIR,—I have on several occasions when speaking to our Societies in different towns and cities, regretted the fact that our people plant the maple so exclusively as a shade tree. The maple is indeed a beautiful tree, and I hope the time may never come when it will not be extensively planted; but a recent visit which I made to the city of Burlington, Vt., would have convinced me had I not already been convinced, that the American Elm is superior in every respect. It is comparatively free from attacks of insects, has a most graceful form,

and endures the hardships of street and park life quite as well as any tree that is planted. The streets and parks of Burlington have many notable examples of the great beauty of the American elm as a shade tree; and there is no reason why our towns and cities should not use a greater variety of shade trees than they do, and when a selection is made there should always be a large proportion of that "forest on a single tree"—the elm. This tree grows nowhere in greater perfection than it does in Ontario.

MEN WHO HAVE SUCCEEDED—V

J. H. HALE

THE EXTRAORDINARY PERSONAL STORY OF THE MAN WHO FIRST PLANTED LARGE PEACH ORCHARDS IN CONNECTICUT AND GEORGIA, AND WHOSE WORK HAS BEEN AN IMPULSE TO PEACH-GROWING THROUGHOUT THE COUNTRY, AS TOLD BY HIMSELF IN "THE WORLD'S WORK"

BORN and reared on a little Connecticut farm, with a love of fruits inherited from ancestors on both sides, I have among my earliest recollections the seedling peach trees along the fence row. The little Red Rare-ripe peaches that clustered on these bushy old trees every September were beautiful as



FIG. 2362. J. H. HALE.

a Crimson Rambler rose to-day. One old tree, more sturdy than the rest, and fruiting every year, strongly attracted me, especially after I had learned that it was over seventy years old. If a tree could fruit like that under such conditions, what might not be hoped for with better varieties and better culture?

My father died in early boyhood, and mother and children were kept hustling to get a living and keep up the interest on the

mortgage. A shovel, a spade, and a little old hand-cart were our only implements. The question of how to start a peach orchard had to give way to the more pressing question of how to get enough to eat from day to day. At twelve years of age I went to work by the month for a neighboring farmer, and one September day, cutting cornstalks near the beautiful valley of the Connecticut, I came across a seedling peach tree, right there in the corn field, loaded down with ripening fruit; rosy red peaches, sweet and delicious. Tired and exhausted from the heavy work of handling the cornstalks, I sat a long time under the tree, eating peaches and dreaming of the peach orchard I would have if ever I got money enough to buy the trees; and I believe the joy in the thought put such life into me that the extra work I did that afternoon more than made up for the time lost under the peach tree.

Continuing to work out by the month on farms, the fall I was fifteen found me with nearly one hundred dollars in cash. The winter following my last at school, I had been reading everything I could get on horticulture, and by spring I was ready to invest my cash in fruit trees and plants. As quick returns must be had, the start was made with strawberries and raspberries. Some cash came in the following June, and then the quarter-acre of my beginning was increased to an acre, and later to four or five acres. Keeping in view my peach dream, the first peach orchard of a few hundred



FIG. 2363. THE HALE PEACH ORCHARDS.

trees was now started, and the next year, during the fruiting season, a trip was made to Delaware to study varieties and methods. At that time, so far as I know, there was not a commercial peach orchard north of New York, and the following spring, when I planted out an orchard of 3,000 trees, it was the general opinion that the attempt to grow peaches on a commercial scale as far north as central Connecticut was a crazy scheme of an inexperienced youth, and could only result in failure.

Looking over the situation from time to time, and hunting up old fruiting trees in neighboring towns, wherever I could find them, it took but a few years to learn that the killing of fruit buds by the extreme cold of winter was one great danger to be feared. I found that side hills and tree tops had a way of sliding the frost down into the lowlands; and by tramping around with a thermometer just at daylight some of the coldest mornings, I found temperatures varying all the way from fifteen to twenty below zero on the level and in the valleys, while on the hill

sides, not over fifty feet above, the tube would show from eight to twelve below, and on the hilltops of 200 or 300 feet elevation, scarcely a mile away, the mercury would register nearly zero.

Here, then, was the place for peaches, if soil and other conditions were right. By straining to the utmost my slender resources and depending upon the berry fields for ready cash to keep the venture going, I managed to secure and plant nearly 10,000 trees in two blocks. I set about leasing what I thought were suitable lands for further development in the early eighties. One block was on land owned by a widow 94 years old, who, after signing the lease with her own hand, said, "Now, I am going to live long enough to see this peach orchard in fruit. How long will it take?" When she was told that it would be four or five years at least, and possibly longer if the winters were too severe, she smiled, and said, "Well, I will wait to see one crop, anyway." Six years later, when the first moderate crop came, I took the dear old lady,

then 100 years old, in a low and easy carriage, and drove among the trees. She picked the luscious fruit with her own hands from the bending branches, and was as happy over it as a young girl. On the way home she reminded me of her promise to stay till I had one crop, and then with a smile, and a trace of a twinkle in her bright little black eyes, said, "Does this really count for a full crop, or must I live a year or two longer to fulfill my bargain?" I assured her that this would not count, and I had the pleasure of showing her two crops after that, and taking tea with her on her 104th birthday, and it was not until six months later that she left us.

After five years of thorough culture the trees had just come to full fruiting age when three very severe winters in succession killed all the fruit buds. Deeply in debt as I was, and faced with necessity to maintain the standard of culture I believed in, my friends and well-wishers now advised the abandonment of the enterprise without sinking any more money in what seemed to them a hopeless endeavor. Anyhow, they said, the trees would live awhile without culture, and it would be time enough to spend money on them when they showed some signs of fruit-

ing. But with my hand once to the peach plow, I did hate to turn back, and then, thinking how the Lord hates a "quitter," I began hustling to borrow more money. It was a hard struggle, but a record of reasonable industry, coupled with good habits, enabled me to find bankers who were willing to loan money on faith and energy when there was no better collateral in sight.

In that first crop I was aiming for some peaches better than the markets had ever seen before in any considerable quantity, and I deliberately picked off more than three-fourths of the young fruit, greatly to the disgust of friends who could not understand that I was insuring larger and finer fruit.

As the fruit approached ripening, plans for marketing that had been years maturing in my mind were licked into shape. It had cost so much money and waiting to reach this first crop that it seemed necessary to get all necessary profits out of it. Determined to be my own salesman, I leased a vacant store in the near-by city of Hartford, and a month before peaches were ripe, hung out a large banner announcing that a lot of "Home-grown peaches, ripened on the tree," would be on sale there after a certain



FIG. 2364. FIELD PACKING AT THE SPRING GAP ORCHARD.

date. Then I visited the leading towns in Connecticut, Massachussetts, and Rhode Island, seeking out in each town one retail grocer or fruit dealer who handled high-grade goods. To him I told my little story of soil and variety selection, tillage, pruning, fertilizing and fruit thinning. I told him how the fruit was being gathered fully ripe, day by day, as it came to maturity, carefully assorted in three sizes, rejecting all unsound or imperfect specimens, packing the fruit in new baskets made of the whitest wood obtainable, every basket to be rounding full of perfect fruit of the grade, and guaranteeing uniformity of packing; that I was jobbing the fruit myself; that prices would probably be twenty-five or fifty per cent. above the market rates, but that the fruit would be worth it; and that I was prepared to give an exclusive agency to the one dealer in each town who would push the goods into the best family trade.

When the crop began to come in, liberal advertising in the Hartford papers started sales at once. The few outside trial orders gave such satisfaction that orders came pouring in faster than there were peaches to supply them, so that after the first week of the season the daily orders were far in excess of the supply, and prices were advanced to "what the traffic would bear." It was all cash trade, too.

With a girl to book orders and look after the cash, one boy and I worked in the store every night from six to eleven, taking the fruit from the wagons as they came from the farm, and making up the out-of-town orders. And again at four a. m. we supplied the Hartford and local trade, after which came a drive of eight miles out to the farm, there to spend the day assisting at the harvest or toning up of the weak places in the plan of picking, assorting and packing. I soon found that men, however honest, would occasionally sneak the best peaches to the top of the baskets, and that women,

with quicker eye, defter fingers, and natural honesty, made the best graders and packers.

Long days, hard work and lots of fun there were in that first crop, but the greatest pleasure of all was the signing of what then seemed a big check for \$2,100 that paid off the mortgage on the farm, and gave the mortgagee a chance to re-lend the money on a Kansas farm 1,500 miles away, where they could not see the borrower daily if he should depart from the orthodox ways of the neighborhood to branch off into the heresy of a new agriculture.

The peach harvest rounded up nearly \$10,000 profit, from a farm that my neighbors thought three months before was not good security for a loan of \$2,000. All other debts were paid, and the entire surplus was promptly invested in fertilizers for the orchard. Winter's frost destroyed all hopes of a crop the next season, and money had to be borrowed to keep things going; but only for a little while, for 1889 gave a banner crop of superb fruit, which, marketed as before, gave net profits from thirty-five acres of over \$24,000. Such a fruit harvest was a novel sight in New England, and dealers, consumers and land owners from far and near flocked to the orchards by the hundreds each day. New England received a stimulus in peach growing, resulting in the planting of over 200,000 trees in the season of 1890. Continued planting since shows at the present time over 3,000,000 trees in the peach orchards of Connecticut, more than 100,000 in Rhode Island, 300,000 in Massachusetts, and not less than 50,000 in southern counties of New Hampshire.

My own planting has at least kept pace with the rest, so that now 50,000 trees in Connecticut alone represent the outgrowth of the "crazy" scheme of twenty-five years ago. Rocky hills and semi-abandoned brush pastures have been purchased; woods, rocks and stumps have been cleared away at an expense often exceeding five and even

ten times the cost of the land itself; yet the new industry has paid all the bills, and left me a cash reward far greater than my limited education and abilities would probably have commanded in any other business or profession.

The old cornfield is now a part of my farm; peach trees by the thousand cover the hills, and in peach harvest, when 75 to 100 Italians are joyfully singing as they gather the fruit; I do not feel so lonely as I did once on that same old hill.

THE NEW YORK MARKET

ITS POSSIBILITIES FOR CANADIANS—UNLIMITED
DEMAND FOR LATE STRAWBERRIES—LETTERS

FROM

MR. FRANCIS WAYLAND GLEN

BROOKLYN, N. Y.

BROOKLYN, N. Y., July 3rd, 1902.

SIR,—This morning my grocer charged me 18 cents per quart for strawberries. They were fine, but not the best they came from Oswego; they have been the same for the past 6 days; red raspberries, 16 cents; blackcaps, the same; good blackberries, 10 cents to 12 cents; currants, 10 cents; prime California cherries, 12 cents per pound; Georgia plums and peaches, 10 cents per quart; whortleberries, 15 cents; local cherries, 10 cents; pine apples, 12 cents each, of fine quality; red and yellow bananas, very cheap, quality best; apricots from California, 10 cents per quart. With all these fine fruits fresh and in fine condition, strawberries hold the price above quoted. Prime berries have been sold wholesale at 16 cents for the past week.

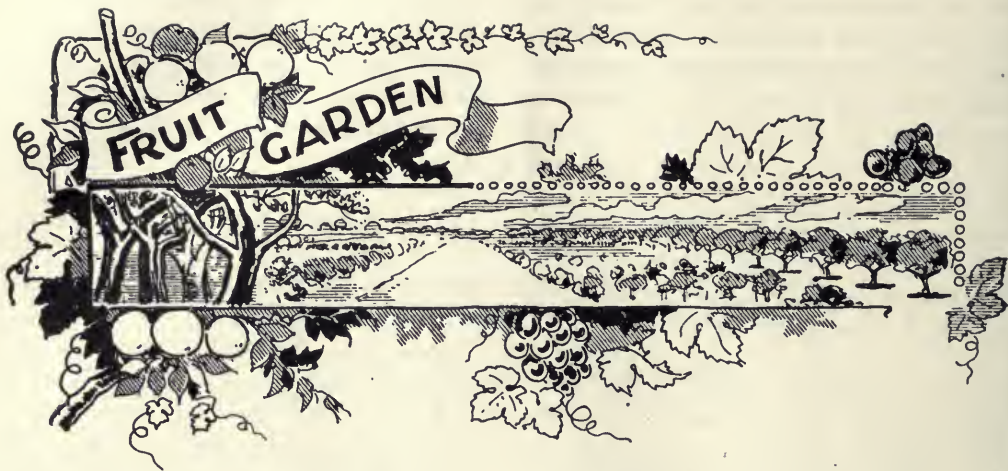
We have 10,000 grocers in this city. If they only sell 10 quarts per day each, the total sale will be 100,000 quarts per day. Then there are 2,000 retail dealers who make large sales. Now at these prices a late strawberry in Ontario would be a money maker. As a rule from June 21st to July 15th strawberries command high prices in this market. The time is near at hand when we shall have complete reciprocity in trade with Canada, then Canadian fruit growers in all the provinces east of Manitoba will have free access to the best market in the world at their very doors.

BROOKLYN, N. Y., July 10th, 1902.

SIR,—To-day strawberries bring 18 cents per box at retail, and the demand more than equals the supply. New England and New York can easily consume 500,000 quarts per day at this price after July 1st. People think that blackberries, raspberries and blackcaps are too sweet this season and currants are acid. They are quite willing to pay a large price for strawberries. N. B. and N. S. should supply New England, and Ontario New York and Pennsylvania. The market is unlimited, returns prompt in cash. A good late strawberry will net the grower 10 cents per quart. We get strawberries from Florida, Louisiana, Georgia, Tennessee, Virginia, Maryland, New Jersey, and why not from Canada?

BROOKLYN, N. Y., July 12th, 1902.

SIR,—My grocer tells me that this is the last day for strawberries for 1902 from Oswego. Some fine berries will still come to market from the North, but the price will be so high that the grocer in these parts of the city, where the very wealthy reside, will buy them all. For the past twelve days the price for good prime berries has been 16 to 18 cents per quart. At this price they should net the grower 10 cents. Wholesale price for the past few days has been 15 to 16 cents.



HINTS TO APPLE GROWERS

GOOD VARIETIES PAY—FOUR FAVORITES—
TOP GRAFTING—INDIVIDUALISM IN FRUIT
TREES—THE TALMAN SWEET A STOCK

BY

W. H. COARD, LL.D.

IN THE older parts of Ontario, such as the counties of Middlesex, Perth, Oxford and Brant, as well as portions of Huron, where the best apples grew in times gone by, to-day there is a great neglect of young tree planting as well as of pruning, and the natural result is a diminution in the quantity of apples grown and a decline in the quality of the fruit produced. Now, in Grey, in the northeastern part of Durham, and in the county of Northumberland, the young orchards are just about equal to the older ones in number, showing that planting is there going on vigorously.

In the former cases there is no doubt the trees were planted from some twenty-five to forty years, when there was no exact knowledge of, and, perhaps, but little experience, in varieties—when only apples

were in demand, when the soil was new, when insect pests and fungous diseases were rare, and when the only skill required was simply to take the fruit. Under these circumstances the business of apple growing was exceedingly profitable; but there soon came a glut in the earlier varieties. They were not suitable for the export trade, so that as soon as the home market was supplied there was no further call for them. The soil lost something of its virgin freshness; the trees would not grow so well; and with the increased number of trees there came a quadrupled increase in fungous diseases and insect pests. Not only was there a falling off in the demand for the particular variety they were growing, but there was an increased difficulty in growing any variety; hence farmers got the idea that there was no money to be

got out of apples, and they let their orchards run wild, they allowed noxious insects to multiply and fungous diseases to run their course, with the inevitable result that the orchards were almost ruined. In the Georgian Bay district, however, it is not difficult to persuade farmers that orchards can be made to pay; but everyone should understand that to be a successful apple grower he must choose suitable varieties, adopt clean cultivation, pursue systematic pruning, spray at the proper time in the proper manner with the proper solutions, and direct careful attention to cover crops. "Where ignorance is bliss 'tis folly to be wise," is not in the science of horticulture. This the Dominion Department of Agriculture is trying to instil into the minds of fruit growers by means of lectures and object lessons. Mr. A. McNeill, acting chief fruit inspector, is engaged in this work, and this is how he teaches the young idea how to grow fruit successfully, profitably, and ready for sale. He arranges a meeting in a central locality and spends from half an hour to an hour in-doors lecturing and answering all sorts of questions put to him by growers and others. Then he proceeds with his audience to a near-by orchard, where he commences an expedition in search of noxious insects and fungi. Having discovered a pest (aided perhaps by a magnifying glass), he next proceeds to prepare his Bordeaux mixture, and then sprays the infected parts with the force pump, taking care to demonstrate as well as to explain the difference between showering, or sprinkling, and actual spraying; for while spraying with poison is salvation to a plant, tree, or shrub, showering or sprinkling means very often destruction. All insecticides and fungicides should fall on vegetation in the most delicate spray, otherwise the tree may be injured.

Mr. McNeill found in his recent tour

through the counties already named, a general belief that there were no insects this year doing any damage. His magnifier soon discovered hosts of insects. The oyster shell bark louse is very prevalent, the cigar case bearer in some districts was quite numerous, the tent caterpillar was in evidence, but not seriously, and the canker worm in some localities was very plentiful; but for multitude, the bud moth simply swarmed. The result of finding these pests where they were supposed to be conspicuous by their absence so struck the farmers that Mr. McNeill could have sold a gross of magnifiers on the spot. It was an object lesson that will never be forgotten; it was nature study in its most tangible form; it was that practical experimenting which leads to the conversion of the desert into a fruitful field, and clothes the dismal prairie with a world's grain field.

It does not always fall to the lot of a Government to witness the good results of missionary zeal, but here in Canada we are constantly reaping where we have sown, and Mr. McNeill reports that the result of the forward policy of the Minister of Agriculture has already, in the fruit section, led farmers in the older portions of Ontario, to abandon their former slovenliness and to go in for clean cultivation, while in the newer districts the fruit growers themselves so appreciate what has been done to help them that they have become living exponents of the same policy.

To secure and maintain profitable apple cultivation after following out the work necessary, everything depends upon the variety cultivated. The grower must produce what the market requires, the market will no longer be content to adapt itself to the whims of the grower. No matter how healthy or prolific a tree may be, if the fruit be not of the right variety it is valueless.

Undoubtedly winter varieties are those that are paying best.

The four varieties of apples that are receiving the most attention now are Baldwins, Ben Davis, Greenings, and Spys. As these varieties cover only the fall and winter months, it is certainly not wise to overlook entirely the early sorts, because there must spring up a market for the earlier sorts as soon as the others have got the market securely.

Top grafting has received a great deal of attention this spring. The average farmer thinks there is some mystery about grafting, so it is very gratifying this year to find him amenable to culture on the point. It is gratifying to discover how many farmers are taking up grafting, for where it has been put into practice it has been eminently successful. One Ontario farmer who had never grafted a tree in his life, after hearing Mr. McNeill's lecture some time ago, top grafted a large number in his orchard, and his losses were under 3 per cent. of the number grafted.

Grafting should be made a part of every boy's education. Notwithstanding all the care the nurseryman can give to his stock, serious mistakes will be made in the varieties, and if for no other reason than that every lad should know how to perform so simple an operation as grafting.

Trees have individualism just as animals have, and for reasons that we cannot explain, one tree with apparently no better

chance than another growing by its side, of the same variety, will be prolific while the other is comparatively barren.

The best orchards of the future will be those that are planted with some hardy vigorous stock like our Tallman Sweet, or Macmahon's White, and when these have formed a stock ahead at two or three years old they may be top grafted from selected trees.

As the nurseryman practices propagation he exercises no discrimination, because his cuttings are from productive and non-productive trees alike, and more often than not they are taken from trees that have not come into bearing at all, consequently he must perpetuate a good many poor specimens.

The man who top grafts has an opportunity to examine a thousand trees, and, selecting the best can top graft his whole orchard with the confident expectation of having nearly all his trees approach very near in merit that one in the thousand that he selected for his grafting.

One reason why top grafting cannot be recommended to the average farmer indiscriminately is that he cannot be always induced to do the work in the proper time or in the proper manner. He cannot always be trusted in the matter of selection. And he is too apt to be careless and indifferent, leaving the greater number of his trees ungrafted to the serious detriment of the symmetry of the orchard.

New York School of Agriculture and Horticulture.—Mr. G. F. Powell's work at Briarcliff Manor, New York City, has already been referred to in these pages. Practical instruction is here given in all branches of Agriculture and Horticulture, with accom-

panying lectures and class room work. Finding the acreage at Briarcliff too limited for rapid development of the work, the trustees have purchased over 400 acres of land near Poughkeepsie for the permanent establishment of the school.

THE FRUIT CROP

APPLES FINE IN SOME PARTS, SCABBY IN OTHERS—
PLUMS AND PEARS A LIGHT YIELD—PEACHES HEAVY

OUR excellent contemporary the Sun has been making some recent inquiries regarding the fruit crop, which goes to substantiate the correctness of our tabular statement in July number, as follows:

DROPPING REPORTED

T. H. Race, of the Recorder, and a director of the Ontario Fruit Growers' Association, writing from Mitchell, says: "The prospects for apples throughout this section are good. We are looking for rather more than ordinary crop if the promise at the present time holds out to a fulfilment. I notice, however, that with some varieties a heavy drop has been going on since the hot days of the past week began. This may be somewhat owing to the change of temperature, and may prove beneficial, as it was noticed that some varieties were setting very heavily, and a few apples dropped while the cool, wet weather lasted. If the drop proves only normal, the size of the remaining fruit will be better, and the crop will be a better one than we had in either of the last two years. Some farmers are reporting that the Spys have not set well, but on close examination I find there is quite enough fruit set to make a good crop, though it is as yet owing to the cool weather too small to be readily seen. The Spy has, however, been shyer in setting than most other varieties. So far as I have seen there has been little systematic spraying owing to the continued wet weather, but notwithstanding this, there has not been so much damage done by the codling

moth as in other years. It is too early to speak of fungus diseases, such as scab or black knot, so far as apples are concerned. The latter trouble is showing on the pear crop."

IN THE BANNER COUNTY

D. J. Nesbitt, writing from Brighton, the centre of the great Northumberland apple district, says that the prospect for the crop there is good, the yield promising fully equal to that of 1900. The apples will be quite clean, as there are no insect or fungus enemies except on the Snows; these latter will be somewhat spoiled. "The apples are falling off to a considerable extent," he adds. "Baldwins and Spys are going to be the best crop with us, but all kinds are fairly well loaded."

Wm. Rickard, M.P.P., of Newcastle, speaking from Durham, a close rival to Northumberland as an apple producer, says: "Apples at the beginning of the season were, generally speaking, very thick on the trees, but a great many have since fallen. In some instances the crop has actually been left thin. This may be the best all round, as the crop generally promises to be a good one."

ANOTHER BIG APPLE CENTRE

A. Gifford, of Meaford, writing from the center of the magnificent Georgian Bay fruit district, says: "Apples constitute the most important fruit crop in our section. It is too early to say just how they will turn out. Moreover, there is a great variation in the crops on adjoining farms,

but some varieties (Baldwins and Greenings) are light, while Spys are variable. Ben Davis promises fair, though many are falling. Kings and fall varieties are fair. All varieties are high colored for the time of year, but more or less spotting is already visible. Insects are not as numerous as in past seasons. As a whole, it will require very favorable weather to secure an average crop."

C. L. Stephens, the well-known horticulturist of Orillia, says that apples, so far as he can ascertain, from enquiry and observation, at present promise fairly well for quantity, and where fungus disease has not prevailed the quality and size will be extra fine. "Several varieties," adds Mr. Stephens, "are badly affected by black scab on fruit and leaves, but there is little or no trouble from any insect pest as yet. I think five and one-half bushels per tree is too high an estimate for this section, where most orchards are composed of comparatively small and young trees; four bushels will be nearer the thing. The fruit is, however, holding on well."

IN CENTRAL ONTARIO

"Everything," says Dundas and Flaville Brothers, of Lindsay, "points to a large and good apple crop in this section of the Province." "The prospects about Oshawa," writes Edwin Worden, "are for a yield about equal to that of 1900. Quality so far is also good, the fruit being clean and large."

"Apples about St. Catharines," writes Robert Thompson, "are clean, bright, and free from insect enemies. The fruit is already beginning to show color. The crop is not quite as heavy as in 1900, but the apples are holding on well and becoming a good size for so early in the season."

IN HURON AND BRUCE

A. E. Sherrington, Fruit Station, Walkerton: "Apples promise above an average

crop, but are suffering from fungus. The quality, I am afraid, is going to be poor. The fruit is holding on well, but foliage looks bad."

F. C. Elford, Homesville, Huron County: "The apple crop will not be as heavy as was anticipated, and from present appearances not as large as that of 1900. The fruit is holding on well, but is scabby."

N. D. McDougall, Tiverton, Bruce County: "The yield of apples in this section will not be as high as in 1900, this being the off year for Spys in this section. Early varieties, however, promise a good yield, but the average per tree all round will not go beyond four bushels. The fruit is clean and free from fungus and insect enemies. The apples are forming well, and hold strong to the branches."

BAY OF QUINTE DISTRICT

W. H. Dempsey, of the Fruit Station at Trenton, Bay of Quinte district: "There is a difference of opinion regarding the apple crop. Some growers say they promised a heavy yield, more than ever before; others say they expect only a little over half an average, that they cannot find more than two apples in a cluster, never three or four, and in a great many cases only single fruit. Some say, too, that the apples are dropping badly. A few people have a heavy crop of Baldwins and Kings; others have none. What orchards I have seen will not equal the estimate of 1900, 5½ bushels to a tree; about 3 bushels to a tree will be what they will give for trees from six years up to thirty or forty. There is considerable fungus, which no doubt accounts for so many apples dropping. There are no complaints from insects."

NORTH SIMCOE

G. C. Caston, Craighurst Experimental Station: "Apples generally will not be more than an average crop. Early apples

will give a good yield, but winter varieties are not above the average. The fruit is still dropping badly."

ONTARIO COUNTY

Henry Clendenning, writing from Manilla, in Ontario County, says: "The prospects of the apple crop are fair, though the wet weather has prevented rapid growth. In consequence of the wet weather the fruit is smaller than usual at this date. The fruit is holding on fairly well, but there is a good deal of black spot or scab owing to the fact that very little spraying has, on account of the wet weather, been done this year. There has not been much damage from insect pests except the leaf roller. This has attacked a number of orchards. The yield of ap-

ples will probably be about one-half to two-thirds that of the crop of 1900."

THE GEORGIAN BAY EXPERIMENT STATION

J. G. Mitchell, of the Fruit Station at Clarksburg, in the Georgian Bay district, says: "Since last report the fruit situation has been somewhat changed. Apples are still growing well, and promise an abundant yield. So far the fruit is holding on well, the dropping being no more than necessary. We have been particularly free from insect enemies, but apple scab is now showing signs of development, and may cause considerable damage should wet weather continue very much longer. All things considered, there is prospect of more than average crop."

AN OFF YEAR IN PLUMS

THOUGH SOME LOCALITIES PROMISE A GOOD YIELD—
OTHER FRUITS IN GENERAL TURNING OUT WELL

"Plums about Brighton," writes D. J. Nesbitt, "will be about one-third of a crop, and pears about half a crop."

T. H. Race, Mitchell: "The small fruit crop has been and is abundant. Strawberries have been very plentiful, but as few of them have been put down, the demand for other fruits for canning purposes will not be affected. Currants, gooseberries and raspberries are an abundant crop, and are likely to supply a large place in household consumption. Cherries are not a good crop, and the early ones now coming into the market are readily bought up. Plums are not going to be a heavy crop, though some varieties are bearing well. It seems to be an off year with the old standard, Lombard, as it did not blossom this season except with an occasional tree. I might observe here that I am dis-

carding the Lombard from my collection, owing to the liability of the tree to black knot, and the fruit to rot, and am planting in its stead the Abundance and Burbank. These latter are bearing heavily this season. Pears were promising well for a time, but within the last few days a blight has struck some of the trees, and the black spot is beginning to show badly on the Flemish Beauty. Clapp's Favorite is promising well, but with all the later varieties the crop will be only a bare average."

C. L. Stephens, Orillia: "There will be about 20 per cent. of a plum crop, as compared with last season, the curculio has been pretty bad, but we are very free from aphids. Pears, not grown much, but I hear of several good bearings of Flemish Beauty, which so far are in good condition. Most grapes are only just now in

bloom, so that the prospect is very poor for ripe grapes in September."

A. Gifford, writing from Meaford, one of the greatest plum districts of the Province, says: "Plums will be a light crop, below last year in quality. Pears below the average, except Flemish Beauty, which so far promises well."

J. G. Mitchell, Clarksburg Fruit Station: "In plums the prospect is not so favorable as in apples. Some growers report very poor crops, others say their plums are nearly all falling off. This seems to be the case in orchards which have had poor care, while in orchards which have had good care and cultivation there is a full crop. On the whole I think the plum crop will be much below average, and in addition to this many acres of trees have been torn out and burned, the owners thinking it too much trouble to grow plums at the prices realized in late years."

A. E. Bellman, Bowmanville: "Plums have set well on some trees, and poorly on others; but I think, upon the whole, the yield will be considerably below last year. Pears seem a very good crop, but have dropped a good deal. Notwithstanding the dropping, they will be nearly as good as last year."

Murray Pettit, Winona: "The plum crop will be medium. The trees are healthy and no rot. Burbank and Bradshaw will be much heavier this year; Washington, Lombard, Yellow Egg, and Reine Claude lighter. Peaches a heavy crop. Bartlett pears will be a quarter crop, Flemish Beauty and Duchess an average, other varieties rather light. Grapes good."

John R. Walker, Cheapside: "We will not have over half the plum crop we had last year. Pears are a fair crop, but not up to last year by a third."

A. W. Peart, Burlington: "Plums are below an average, considerably short of

last year. Pears, dwarfs, are average; standard varieties are below an average; peaches, above an average; grapes, an average crop; currants, red, below average; black, above an average; blackberries, above an average. Insects and fungi have done little damage yet to the apple. During the past few days, however, a leaf blight has developed on certain varieties of red currants, other varieties being entirely exempt from it."

IN NORTH SIMCOE

G. C. Caston, Craighurst Experimental Station: "Cherries are almost a total failure; plums, 25 per cent.; pears, fairly good. The curculio is getting in its work on what few plums there are. Frequent rains have prevented successful spraying this year."

UNITED STATES FRUIT PROSPECTS

Although the fruit prospects in the United States are not as good as they were a month ago, the indications are, says the Official Crop Reporter, issued by the United States Department of Agriculture, for better than average crops both in apples and peaches this season.

The Climate and Crop Bulletin, speaking on the same subject, says: "In Michigan, New York, and New England apples continue promising, and a further improvement is reported from Kansas and Oklahoma; elsewhere a very inferior crop is indicated. Except in Michigan, Tennessee and Arkansas, peaches are scarce."

IN WESTERN NEW YORK

Secretary Hall, of the Western New York Horticultural Society, has kept close watch of fruit conditions since the May frosts, and from correspondence with fruit growers over that section of the State finds many gratifying conditions. Apples never

looked nicer, being absolutely free from fungous disease.

TOMATOES ARE DOING WELL

The tomato crop, which may be included under the head of fruit, does not

promise at all well. In fact, tomatoes never made a much poorer show than they are doing in Kent County this year. If what is seen in Kent is a fair indication of what is found elsewhere, tomatoes for canning will be a scarce article this season.

CHANGES IN VARIETY OF APPLES GROWN IN NOVA SCOTIA

BY

F. C. SEARS

PROF. OF HORTICULTURE, WOLFVILLE, N. S.

IN these days of the almost endless multiplication of new varieties of fruits, when every year sees the launching of new sorts which it would seem (from the introducers' descriptions) must displace altogether the old favorites, it is interesting to observe the changes taking place in the varieties of apples which are set in commercial orchards.

I have before me a report of the Nova Scotia Fruit Growers' Association of 1883 in which is given a descriptive list of the "nine principal kinds of apples grown in Nova Scotia," and it is stated that this list was prepared in 1880, so that over twenty years have elapsed since it was compiled. The list, which is the work of Mr. R. W. Starr, is as follows: Gravenstein, Ribston Pippin, Blenheim Pippin, King of Tompkins, Baldwin, Nonpareil, Northern Spy, Yellow Belleflower and Golden Russet. At a recent meeting of our Horticultural Club, on the same authority, the following list was selected as the "*ten* best commercial varieties" from Nova Scotia to-day—Gravenstein, Ribston Pippin, Blenheim Pippin, King of Tompkins, Golden Russet, Baldwin, Northern Spy, Stark, Fallawater and Nonpareil. In other words, after twenty-two years' experience Mr. Starr drops the Yel-

low Belleflower from the list and adds the Stark and the Fallawater. Truly this is not a great change for so long a time!

But when one comes to examine critically his revised list, which undoubtedly comes very close to being the ten most popular among Nova Scotia growers to-day, it is surprising how many of them have one or more serious defects viewed from the standpoint of the grower. Some of the most obvious are these:—The Gravenstein, though all that could be desired for quality and growth, comes so early that prices are low and the demand limited. The Ribston has a serious tendency to dry rot and is almost wholly a dessert apple, so that the market is limited. The Blenheim dry rots and the King is often a shy bearer and apt to be affected with "collar-rot." The Golden Russet is a very irregular bearer, with a few growers giving good and regular crops, but more often being a light, shy bearer. The Baldwin is, we believe, about as popular as any variety grown, though its tendency to overbear every other year and "under-bear" in between is against it. The Spy is all right except that it is too slow in coming into bearing, and the Stark is very popular just now but has not been grown very extensively, is not of high quality and

those who know it best say that it is seriously liable to a browning of the skin, akin to the dry-rot of the Ribston. The Fallwater is excellent in most respects but is very liable to attacks of "collar-rot," while the Nonpareil, though an ideal apple in many respects, is not of high quality and is developing, in the western end of the Annapolis Valley, a most alarming tendency to canker.

All this simply shows that the ideal varieties have not yet been produced, at least in great numbers, and while more knowledge may help us to overcome some of the defects mentioned, still we should welcome the present tendency to introduce new sorts and should hope great things from it.

Just now the Red Russet, which is said to

be a cross between the Baldwin and the Roxbury Russet, is coming into favor wonderfully with those who know it. And like almost every other locality the Ben Davis has been largely planted in Nova Scotia of late and growers are still wondering whether this was wise or otherwise; while Ontario, McIntosh Red, Gano, North Star and Ohio Nonpareil are varieties which are claiming more or less attention as new and promising sorts for general planting.

Altogether we cannot doubt that within the next twenty years we shall see a much greater change in this matter of varieties than has been witnessed in the last twenty, and we may reasonably hope that "the change will do us good."

NEW FRUITS

Mersereau Blackberry is highly eulogised on the circulars which have come to hand, emphasizing four cardinal points in its favor: great size, luscious flavor, great hardiness of canes and great productiveness. It is claimed that in quality it is exceptionally sweet, rich and luscious, without a core. A shortcake made of it is more delicious than that made from strawberries. The yield is enormous; the introducer declares that as much as 12,000 quarts per acre have been harvested.

The King Raspberry is said to be the earliest red variety, its fruit of the brightest crimson and of best quality, equalling in this respect the popular Cuthbert, than which it is a better shipper.

Peach, Duke of York.—Our early peaches are usually so small and rot so badly in ripening that many of our peach growers are quite discouraged with them. In consequence of this there are very few early varieties being planted. At the Royal Horticultural Society's show on May 20th a new variety was exhibited, which received the award of merit as a new variety of great promise. It is called the Duke of York, and is a cross between the Early Rivers nectarine and the Alexander peach. The flavor is excellent, and the fruit pretty and well colored, and of the largest size. Its season is the same as that of the Alexander peach.

HINTS TO ONTARIO FRUIT SHIPPERS

THE TASMANIAN APPLES—SOME SPECIAL VARIETIES—NONE
EQUAL TO CANADIAN—LESSONS TO BE LEARNED IN PACKING

A LETTER FROM

A. McD. ALLAN

SUPT. OF FRUIT EXHIBIT FOR THE DOMINION AT WOLVERHAMPTON, ENG.

PROBABLY the most striking characteristic of the Tasmanian apple is the similarity of all the varieties, and the fact that all are alike firm in flesh, but devoid of juice and possessed of but little flavor. Doubtless the absence of juice accounts to a large extent for the fact of their carrying so well to distant markets. Some dealers inform me that it is a rare thing to find decayed or partially decayed specimens among the best kinds, especially in the early shipments. But in the second quality sometimes nearly half the contents of a box is worthless.

The box is made from hardwood and contains from thirty-eight to forty pounds of fruit, each sample wrapped in tissue, or soft light brown paper. There does not appear to be much, if any fungus spotting in them, but they wilt and become wrinkled in the skin and dry in flesh. Excepting a slight blush upon the cheek there is an absence of high color. They are of the pippin family, the yellow kinds with a slight blush being considered the best for dessert, and the hard, green kinds for cooking only. The highest quality variety is named "New York," size and color about equal to a good medium sized Yellow Bellflower, core large and open like that variety, but calyx closed and set in deep, smooth basin, stem short and thick, set in a smooth, open, deep basin. This variety has a fine aroma which would lead one to expect fine flavor, but it is quite disappointing in this respect. This and several other kinds are of the Ribston form, or rather between that and Chenango,

while another class of varieties is flatter and does not average so large or heavy.

Storman Pippin, which is said to be the best of this latter class, is a fair representative of them all in form and color, and resembles New York in all but form. New York brings the highest price, from ten to twelve shillings; Storman Pippin 8 to ten shillings; other named kinds, five to seven shillings. Tasmanians are now all in the market and will soon be in consumption just as French strawberries and cherries arrive. Canada has nothing to fear from Tasmanian apples, even if they come in direct competition. But we can learn a lesson in careful selecting and packing. I am convinced that it will pay our shippers to send all first-class samples in boxes, wrapping each specimen in tissue, and to send forward in cold storage, even if freight rate should be much higher in that way.

The shipper who does this, taking great care to select absolutely choice specimens, to adopt and register with a neat, appropriate brand, stencil the correct name of fruit and its grade as well as the name of shipper upon every box, will make a fancy price in any market here and create a demand for all that Canada can send in future years.

Many dealers complain of the bad packing, and indeed it would be hard to regain confidence in barrel packing, as the trade everywhere express strongly against it, although some do admit a change for the better lately. But even these strongly advise the use of the box.



FLORAL NOTES FOR AUGUST

HOW TO GROW FREESIAS—REPOTTING CALLA LILIES AND PELARGONIUMS—MAKING CUTTINGS OF GERANIUMS—RAISING PANSIES FOR NEXT YEAR—PRACTICAL HINTS

BY

WM. HUNT

O. A. C., GUELPH, ONT.

FREESIAS.—A few of these pretty little Cape bulbs should be started now for early winter flowering. Reserve some bulbs for later potting, so as to have a succession of their sweet-scented flowers from December to April. Plant five or six bulbs in a 4 or 5-in. pot. Very rich soil is not necessary, soil that geraniums will grow well in will suit freesias. Cover the tips of the bulbs so that they are almost a quarter of an inch under the surface of the soil. The top of the soil should be about half an inch from the rim of the pot to allow room for watering. Stand the pots outside where it is not too sunny, never allow them to dry out, and do not keep the soil soaked with water all the time. Let the pots stand outside until early in September, then re-

move them to the window or greenhouse. Place them in a cool part of the house, as the freesia dislikes forcing. Larger blooms, and more of them, are the results of letting freesias take their time in growing.

CALLA LILIES

These should now be repotted if they require it. Do not over-pot them. Too large a pot often means lots of leaves, but no lilies. Sometimes a top dressing is better than repotting. This is done by taking about an inch or so of the old top soil, and putting some good rich soil in its place. Keep the calla lilies outside in partial shade until there is danger of early frosts. Water well when once established in the pots.



FIG. 2365. CALLA LILY.

PELARGONIUMS

These are often known as "Lady Washington" geraniums. August is a good time to cut the old plants well back. Cut the growth of the past season back to within an inch or so of its base. Water the plants very sparingly until the stems show signs of growth. When the young buds or growth is scarcely one-eighth of an inch long, the plants should be shaken out of the soil they are in. If too heavily rooted, which is not often the case, cut off the tips of the roots and repot the plants into a size smaller pot. Use two parts of good loamy potting soil, and one part of sharp, fine sand well mixed together. Water the plants once thoroughly, then withhold water until the soil shows signs of dryness. Place the pots outside in a shady position on some coal ashes or boards, the latter are to keep worms out of the pots. A shaded sash and frame is a

good place for pelargoniums after repotting, until they are taken indoors. Repot the plants into pots one or two sizes larger in December. Use richer soil and less sand for potting them in at this time. The tips of the growth taken from the pelargoniums now will strike readily in sand in pots. The cuttings of these should have about five or six joints, unless the growth is hard, when shorter cuttings may be used.

GERANIUMS AND COLEUS

Cuttings of these should be taken now so as to get the plants established before winter sets in. Five or six cuttings put in sand in a 4-in. pot, and the pot plunged in the ground outside where the hot sun does not strike it, will suit geranium cuttings very well. Keep the sand moist, but not sodden with water.

PANSIES

If these are wanted for early spring flowering the seed should be sown now. Sow in a shallow box in fairly light soil. Place the box in a shaded place out of doors. When the plants are large enough to handle, plant them out in light, rich well drained soil in a shaded frame facing the south. A sash should be placed over them in very severe weather in winter, or the plants should have a light protection



FIG. 2366. FREESIAS IN GREENHOUSE.

of brush and leaves from December to March, instead of the sash.

PETUNIAS AND VERBENAS

If you have a choice variety of these you wish to take up to save over winter, cut the plants well back now. As soon as

young growth commences, take them up carefully when the soil is moist, and pot them into some good potting soil. Place the pots in the shade or in a frame with a shaded sash if you can. Water sparingly for a time after the first watering.

BEGONIA RUBRA

AS A COVER TO THE BACK WALL OF A GREENHOUSE

BY

A. ALEXANDER

HAMILTON

WHEN my present conservatory was built about four years ago, I removed a plant of *Begonia Rubra* from an old greenhouse and planted it in a narrow border, about 18 inches wide, which run between the cement walk and the wall. The plant was about 6 feet high, and had but three stems or canes. The back wall was covered with wire netting to the height of 18 feet, and the whole width 21 feet.

At the end of the second year it had reached the top of the wall and had sent up about ten other canes as large as bamboo canes which were soon at the top, and with the laterals covered a space of more than 250 square feet. About two years ago all the old parts were cut out and the new canes laid in. It is now at this time covering about two-thirds of the entire wall space. From the day it was planted till now, nearly five years, it has been covered with its scarlet flowers in great abundance continuously.

This shows what many common pot plants are capable of when given their liberty and fair conditions. The photo does not do justice to its appearance as it had to be taken at an angle.



FIG. 2367. *BEGONIA RUBRA*.

FICUS ELASTICA

BY

WM. HUNT

THE *Ficus elastica*, or Rubber plant as it is commonly called, is without doubt one of the best and most enduring of decorative plants, either for the greenhouse or the more trying conditions that exist in a window or room of a dwelling house. Although its habit of growth is not as graceful as many well known house plants, such as palms, aspidistra, etc., the thick leathery leaves of this *Ficus* will often retain their bright glossy appearance for a much longer period than most varieties of house plants including those just mentioned, even under more adverse treatment. The propagation of the rubber-plant is, however, the most difficult problem for the amateur plant grower to solve, in connection with its culture. Large plants have frequently to be cut back in order to secure a more shapely plant, or to keep its strong growing branches within reasonable bounds. It is seldom however, that the growth taken from an ill-shaped plant is successfully propagated. A description of some of the methods usually adopted by florists in the propagation of the *Ficus* will perhaps be acceptable to readers of the *Horticulturist*, who may perhaps have a plant that may require cutting back so as to make it more shapely and symmetrical looking. The pruning or cutting back does not injure the plant unless cut back too severely, as it soon breaks into new growth again if not cut back too far into the old wood. Even in the latter case it is only a question of time before it starts into growth again.

Mossing Cuttings.—This method of mossing is applied to partially severed cuttings of the *Ficus*,

is probably the best and surest method of propagation for the amateur to attempt. For the operation of mossing, a fairly strong and healthy branch or shoot should be selected. One or two of the leaves should first be cut away at the place selected for the base of the cutting. The selection of



FIG. 2368.

FICUS CUTTING SHOWING INCISION.

the part of the branch that is to form the base of the cutting is an important point toward being successful in the cutting taking root, as the wood must not be too old and hard, or too soft and pulpy. Usually, the wood is in a suitable condition about ten or twelve inches from the terminal point



FIG. 2369.
MOSSED FICUS CUTTING.

of the shoot or branch. After the removal of the leaves as before mentioned, an incision should be made on the underneath side with a sharp knife, as shown in the accompanying cut. The incision should be made in a slanting direction, running from the base of the cutting toward the tip, and from a half to three quarters of an inch in length, and should extend about two-thirds through the branch, leaving the remaining one-third of the branch uncut. The incision should terminate close under a leaf joint if possible. After the incision has been made a small thin piece of chip about one-sixteenth of an inch thick should be inserted at the termination of the cut. This is done to keep the incision open, so as to allow the thick sap to flow clear away from the incision, as otherwise it would congeal and prevent the cutting from callusing and rooting. The chip should be long enough to extend just through the cutting.

A small stick, or piece of wire should be tied along side of the cutting for a few

inches above and below the incision, to keep the cutting in its proper position. Sufficient wet moss should then be wrapped around the cutting so as to cover the incision fully an inch thick after it has been bound tightly around. The wrapping of moss should extend about three inches above and below the incision, tapering gradually to each end, as shown in Fig. 2369. The moss should be bound tightly around the cutting with raffia or fine twine. Sphagnum moss is the best if it can be obtained, if not, ordinary green moss can be used. The bandage of moss should never be allowed to become dry, but should be kept quite moist by syringing or sprinkling with water once or twice every day. In about five or six weeks after the mossing process the cutting should be examined, when, if rooted, it can be severed entirely from the plant, as shown in Fig. 2370 and potted. If not rooted the moss should be



FIG. 2370.
ROOTED FICUS CUTTING.

again put around the cutting as before described, and left for a week or two longer. If on examination the base of the cutting shows signs of decay instead of rooting, it should be severed entirely from the plant. In this case the cutting could then be shortened a joint or two at the base, and placed in a four inch pot filled with sharp sand. Place the pot in a shaded warm part of the green-house or window and keep the sand moist. A plant may possibly be obtained in this way.

The best time of the year for striking cuttings of the *Ficus*, whether by ordinary or moss cuttings, is during July and August. A warm, sheltered, and fairly well shaded position in the greenhouse or conservatory, is the best place for the plant to ensure success with this method of mossing cuttings. A greenhouse, however, is not absolutely necessary to be successful, as I have rooted cuttings by this method out of doors during the hot months of summer by standing the plants in a warm, well sheltered position.

In potting the cutting most of the moss should be first removed and the plant securely staked. The leaves should also be tied together fairly tight, so as to prevent the cutting from shifting about in the pot. Use light sandy soil for the first potting, and not too rich. Water the cutting rather sparingly until it has become well rooted in the pot, and keep it in a warm shaded place for a time. I have attempted to describe as clearly as possible the method of rooting cuttings by mossing them, some allowance, however, must be made as to depth and length of incision, length of cutting, etc., as these must of necessity vary a little according to the growth of the branch made use of.

Single Joint Cuttings.—These cuttings consist of a single joint with leaf attached. The best part of the branch to secure these cuttings from, is from a few joints above and below the part of the branch described as

suitable for cuttings for mossing. Insert the cutting firmly in sharp sand, so that the base of the leaf and stem at the joint is just under the surface of the sand. A shallow box about two inches deep, well drained and filled with sand, will perhaps be better than pots for these cuttings, as they are less liable to be shifted about in the sand. These pots or boxes—as the case may be—of cuttings can be placed in a warm shaded part of the greenhouse, or in a frame that should



FIG. 2371.
FICUS CUTTING WITH "HEEL."

be covered closely with a sash thickly shaded, so as to exclude the direct rays of the sun. Careful watering so as to keep the sand always fairly moist is necessary to be successful with these cuttings. I have known cuttings of this kind to strike root successfully when the pots have been placed in a window. Single joint cuttings, how-

ever, must be taken in the hot weather if they are to be rooted successfully. The after treatment of the single joint cutting will be the same as recommended for the mossed cuttings.

Terminal Cuttings.—These cuttings and the method of taking them differs very little—except so far as the strong growth of the *Ficus* necessitates—from a geranium or almost any ordinary cutting or slip. The cutting may possibly be a little shorter than that recommended for mossing, especially if the growth of the cutting is short and close jointed. The leaves of these should be tied up fairly close together and inserted in sand, one in a three or four inch pot, and the cutting securely staked. The staking is a very necessary part of the operation, as the weight of the leaves may cause the cutting to move or shift about in the sand and thus prevent its rooting. The same position, etc., will suit these as recommended for single joint cuttings. Oftentimes short cuttings can be taken from the large branches of an old plant with what

is known as a “heel” attached. This “heel” is simply a small piece of the stem, from which the cutting is growing taken off, with the cutting as shown in Fig. 2368. If these kind of cuttings can be obtained they will, as a rule, root more readily than the terminal or plain cuttings before mentioned. Terminal cuttings should be cut off near to and close below a leaf joint, as they strike more readily than if severed mid-way between the leaf joints.

I have recently had several letters from subscribers to the *Horticulturist*, asking for information respecting the propagation of the *Ficus elastica*, hence my reason for writing such a lengthy paper on this subject. I may, however, say in conclusion that the method of mossing cuttings as described for the *Ficus*, can be successfully applied to other plants, more especially to the tall and overgrown stems of *Dracenas* and *Cordylines*, that have a natural habit of becoming tall and unsightly looking as decorative plants.

FRUIT CROP NOTES

The Winnipeg papers are making the most of the report of the Fruit Inspector in the Northwest, who repeats the story that Ontario has been losing the trade of the Northwest on account of bad packing. We would like to hear something from the Ontario fruit growers on this Northwest trade.

Apple growers, in anticipation of a somewhat larger crop than usual, should provide ample storage. Boards of Trade and Fruit Growers' Associations can do no better work than encourage the building of farm and general storage houses and the establishment of evaporators.

House cellar storage is not usually very successful with apples. The fact is we want a cooler temperature than is usually obtained in a house cellar. A cellar under an out-door building that can be opened cold nights and closed during the day is much more successful.

Reports come from Nova Scotia that the unusually cool winds in May and June and the ravages of the Bud Moth will make the apple crop small in quantity and inferior in quality this year. J. W. Bigelow, of the Provincial Fruit Growers' Association estimates the Nova Scotia crop at 200,000 barrels for shipment.

CANADIAN MAPLES

TEN VARIETIES IN CANADA—CAREFUL DESCRIPTION WRITTEN FOR THE JOURNAL

BY

W. T. MACOUN

HORTICULTURIST CENTRAL EXPERIMENTAL FARM, OTTAWA, O. T.

IF THERE is one Canadian tree which is known to young and old it is the maple. That patriotic song, "The Maple Leaf Forever," is one of the first which the little children learn to sing at school; and often it is sung in the refreshing shade of the maples on a hot June day, when the value of the maple as an ornamental shade tree is pointed out to the scholars by the teacher. Then, the maple sugar and syrup in the early spring impress the maple on the minds of Canadian youth more than perhaps anything else. Those of maturer years sing the same song, enjoy the same shade, and many also the sweets of the sugar maple. The latter also admire the form and foliage of the trees and the economical value of the wood for furniture and other purposes. The emblem of Canada is thus well and favorably known to young and old.

While almost everyone, from the little child upward, is familiar with the maple, comparatively few, especially in our cities and towns, can distinguish the common species from each other, and still fewer know all the species which are to be found in Canada. It is in the hope of making the different species better known that these notes are written.

There are ten native species of maples in Canada, all of which are perfectly hardy at Ottawa, with the exception of the Large-Leaved Maple (*Acer macrophyllum*) which kills outright, and the Vine Maple (*Acer circinatum*) which, although it becomes

hardier from year to year, cannot be called more than half-hardy.

Six of the species grow to be large or medium sized trees, while four are but small trees or shrubs.

The technical descriptions given in this article are taken from the "Cyclopædia of American Horticulture," as they are simpler and more concise than those found in botanies; but the nomenclature is principally that used in the "Catalogue of Canadian Plants" (Macoun), which is most familiar to readers of the "Canadian Horticulturist." These changes have been made in the names, but both old and new are given. The illustrations are from photographs kindly furnished by Mr. F. T. Shutt.

1. **Sugar or Rock Maple** (*Acer saccharinum*, Wang; *Acer saccharum*, Marsh).—"Large tree, 120 feet, with bark; leaves 3-5 lobed, cordate, 3-6 inches long, with narrow and deep sinuses; lobes acuminate, sparingly dentate, usually glaucous and glabrous beneath; fruit with little spreading wings." It is found from Nova Scotia to the western end of Lake Superior, and in scattered places to the Lake of the Woods and northward to Lake St. John, Lake Temiscamingue, and to the Long Portage on the Michipicotin River, north of Lake Superior. It is the most valuable and one of the most beautiful of all Canadian maples. It is one of our best timber trees, the wood being highly esteemed for many purposes. Being hard and tough, it is used where strength is required, as for axles of wagons, handles of



FIG. 2372. SUGAR MAPLE.

tools, etc., and on account of its fine grain and the fact of its taking a good polish it is much utilized in furniture making, the well-known Bird's-Eye Maple being obtained from this species. As fire wood, the Hard Maple has few equals, and many a log has warmed Canadian homes on wintry nights. The sap of the Sugar Maple gives it a unique place among Canadian trees, for although other trees yield sap which may be converted into syrup or sugar, there are none which produce it which equals the Sugar Maple in richness and palatability. Sugar making is quite an important and profitable industry in some parts of Ontario and Quebec, and the supply of pure syrup and sugar never seems to equal the demand. The continued tapping of the trees does not appear to lessen the vigor of them, and trees which have yielded many a quart of sap live through several generations of tappers. It is as a shade tree, however, and on account of its brilliantly colored foliage in autumn, that the Sugar Maple is best known to those living in cities, towns and villages. For street purposes it stands without an equal, being of fine shape, dense foliage,

comparatively free from insect pests and fungous diseases, and long lived. In October the foliage of this species and the Red Maple assume those varied, delicate, and gorgeous tints which help to give such character to our forests, brightens up our city streets, and gives autumn a gayness which the falling leaf alone dispels.

The Sugar Maple thrives on almost all kinds of well drained soil, but makes little growth where the ground is constantly wet and cold.

2. **Black Maple** (*Acer nigrum*, Michx; *Acer saccharinum nigrum*, Torr & Gray).—"Large tree, 120 feet, with black bark; leaves cordate, with sinus mostly closed, generally 3-lobed, with broad sinuses, the sides of the blade mostly drooping, green and pubescent beneath; lobes acute, entire or obtusely toothed; fruit with diverging wings."

For a long time this was regarded as merely a variety of the Sugar Maple, but it now ranks as a distinct species, and rightly so, for it has quite a different appearance from the former, and is fairly well distributed throughout Ontario, from Ottawa westward. It is not as attractive a tree as the Sugar Maple, the foliage being much duller, but it makes a striking object, as the leaves differ so much from the other large maples, the lobes being almost or quite entire. The wood of this tree ranks next to the Sugar Maple in quality. This tree also yields sweet sap, but is not used in sugar making to any extent.

3. **Red, Scarlet, or Soft Maple** (*Acer rubrum*, Linn).—"Large tree, 120 feet; leaves 3-5 lobed, 3-4 inches long, green above, pale or glaucous beneath; lobes unequally and crenately serrate; flowers red or scarlet, rarely yellowish; petals 5; fruit glabrous."

The range of this maple in Canada is from the Atlantic Ocean west to the Rainy River and a little further north than the Sugar Maple.

The Red Maple is not as useful a tree as the Sugar Maple. Although a prominent Canadian tree, its value for timber, fuel and sugar being not nearly equal to the other, but it is quite, if not more, ornamental. Beginning in the early spring before the leaves make their appearance, the scarlet blossoms, which are so profusely borne, brighten our streets at a time when they are much appreciated, and in the month of June the bright red fruit continues to make this tree attractive. It is, however, in the autumn that it shows to best advantage, when the leaves take on the bright scarlet and lighter hues which make the maples famous. Odd trees will be found assuming bright tints early in the autumn, and the contrast between these and the deep green of the surrounding foliage is very marked.

Where the soil is suitable, the Red Maple makes quite as good a tree for streets and parks as the Sugar Maple, but often it is planted in ground where it will not thrive and it dies before reaching its prime. This tree, unlike the Sugar Maple, does best in wet soil, and is found in the wild state in swampy land or bordering lakes and rivers, being often called the Swamp Maple. Large numbers of the Red Maple are planted as shade trees in our cities and towns, and where the soil is moist they succeed well, but if the soil is naturally somewhat dry and becomes dryer where permanent walks and roadways prevent air and moisture reaching the roots of the trees, they gradually sicken and die. Many such trees may be seen in the City of Ottawa to-day.

4. **Silver or White Maple** (*Acer dasycarpum*, Ehrh; *Acer saccharinum*, Linn.—“Large tree, 120 feet; leaves deeply 5-lobed to 5-cleft, 4-6 inches long, green above, silvery-white beneath; lobes deeply and doubly serrate; flowers greenish-yellow, apetalous; fruit pubescent when young.”)

The Silver Maple is not as well distributed as either of the preceding species. It is



FIG. 2373. SMOOTH MAPLE.
(*Acer glabrum*, Torr.)

found in New Brunswick in a few places, and is quite rare in the Province of Quebec, but is abundant in the Province of Ontario. It appears to succeed further north than either the Sugar Maple or Red Maple, a few specimens planted near the Canadian Pacific Railway at Portage la Prairie, Man., being quite hardy. It has also been planted at Brandon, Man., and although not perfectly hardy does not always kill outright.

This tree is less valuable than the Red Maple for timber or fuel, being very soft; nor does it color as highly in the autumn as either the Red or Sugar Maple, but it is a more graceful tree than either of the others, being of more spreading habit and having more finely cut foliage. Like the Red Maple, this species thrives best in moist ground, and where the conditions are favorable attains a great size. It is a very rapid growing species, and on this account is often planted in preference to other kinds.

The Silver Maple blooms earlier than the

Red Maple, but the flowers are not so attractive. The fruit, which is of large size, ripens about the middle of June, at Ottawa, and is very noticeable when lying on the footpath. There is a well known cut-leaved pendulous variety called Wieri which is a very graceful tree.

5. **Large-Leaved Maple** (*Acer macrophyllum*, Pursh).—"Tree 100 feet high; leaves cordate, deeply 3-5 lobed or cleft, pubescent when young, pale green beneath, 8-12 inches across, middle lobe mostly 3-lobed; racemes

from other Canadian species. Unfortunately, it winter kills at Ottawa. Nor do I know where there is a large specimen growing in Canada outside of British Columbia. The leaf in the illustration is a very small one, but gives an idea of its shape.

6. **Ash-Leaved Maple, Box Elder** (*Acer Negundo*, Linn; *Negundo aceroides*, Moench.— "Large tree, 70 feet; leaves pinnate; leaflets 3-5, ovate or oblong lanceolate, coarsely serrate or 3-lobed, mostly glabrous, 3-5 inches long; flowers before the leaves;



FIG. 2374.

1. *Acer saccharinum*, Wang. 2. *A. nigrum*, Michx. 3. *A. rubrum*, Linn.
4. *A. dasycarpum*, Ehrh. 5. *A. macrophyllum*, Pursh.
6. *A. negundo*, Linn. 7. *A. pennsylvanicum*, Linn. 8. *A. spicatum*, Lam.
9. *A. glabrum*, Torr. 10. *A. circinatum*, Pursh.

pendulous; fruit with yellow, bristly hairs, largely winged."

The Large-Leaved Maple is confined to the Province of British Columbia, and is only found there in the valleys along the coast in the southern part of the province and on Vancouver Island. It is a majestic tree, and reaches a great size in favored spots in British Columbia. The leaves are of great size, often measuring a foot in diameter, which distinguishes this maple very readily

staminate flowers in pendulous corymbs, pistillate flowers in pendulous racemes."

A separate genus was formerly made of this tree and it was called *Negundo aceroides*, but in recent years it has been included with the maples. The Box Elder is not found in a wild state in the Maritime Provinces and in the Province of Quebec. In Ontario large trees have been found in the valley of the Humber, near Toronto, and near Chatham, which were thought not to have been



FIG. 2375. FLOWERS OF SUGAR MAPLE.
Acer saccharinum, Wang.

introduced ; but apart from these two localities, it is not found wild in the writer's knowledge elsewhere in the province east of the Kaministiquia River, which is west of Lake Superior. It becomes more abundant westward, and is very common in Manitoba and the Northwest Territories. On account of its very rapid growth and ease of culture, this tree is often planted in Ontario for shade and ornamental purposes. It, however, usually proves very unsatisfactory, being unshapely and breaking down easily. The fruit also remains on the female trees during winter, making them quite unsightly. In Manitoba and the Northwest Territories, however, this tree has great value. It is a veritable ironclad and withstands the severest winters. It grows to be a handsome and shapely tree on the prairies, and is very useful for shade, for windbreaks, for firewood, and for other purposes. What the Sugar Maple is to Ontario, the Box Elder is to Manitoba and the Northwest Territories. The male and female flowers of this maple are borne on different trees.

7. **Striped Maple** (*Acer Pennsylvanicum*,

Linn).—"Tree rarely 40 feet ; bark greenish, striped with white lines ; leaves slightly cordate, roundish obovate, 3-lobed at the apex, 6-8 inches long, finely serrate, ferrugineously pubescent beneath when young ; racemes glabrous, drooping."

The Striped Maple is common in Nova Scotia, New Brunswick, Quebec, and in Ontario as far as Lake Superior. It is a very handsome little upright tree, with large attractive foliage and curiously striped bark, the stripes being well defined and very noticeable. The flowers, which are yellowish green, are borne in pendulous racemes and add to the attractiveness of the tree. This maple delights in cool, shady woods, and does not thrive in the open as well as most of the other species. The leaves are not highly colored in autumn, but become a pleasing yellow.

8. **Mountain Maple** (*Acer spicatum*, Lam).—"Shrub or small tree, rarely 30 feet ; leaves 3 or slightly 5-lobed, coarsely serrate, pubescent beneath, $2\frac{1}{2}$ to $4\frac{1}{2}$ inches long ; racemes rather dense, long, upright ; fruit with diverging wings, bright red in summer."

This is a very common maple in damp or wet woods from Nova Scotia to the northern part of Manitoba and as far north as York Factory along the Hudson Bay. In the east it is little more than a shrub, but in northern Manitoba it becomes a small tree. As this species grows more in the open woods than the Striped Maple it usually succeeds better in cultivation. It has its own good points and is well worthy of a place in the ornamental grounds. It blooms during the month of June, and the flowers are followed by bright red fruit which makes the tree quite attractive ; the leaves, also, are more or less highly colored in autumn.

9. **Smooth Maple** (*Acer glabrum*, Torr).—"Shrub or small tree, 25 feet, quite glabrous ; petioles bright red ; leaves deeply 3-5

lobed or 3-parted, 1-5 inches across, dark green and shining above, pale or glaucous beneath ; lobes doubly serrate."

This is a western species and grows wild from Vancouver Island eastward to Banff, in the Rocky Mountains. It has succeeded remarkably well at Ottawa and has proven quite ornamental, the red petioles of the leaves and the red branches contrasting well with the glossy green foliage. The largest specimen at the Experimental Farm is about twelve feet high and twelve or thirteen feet across. It is asserted that there are two species in what was formerly regarded as one, and that the form found along the western coast is quite a distinct species from that growing in the mountains. If this division is made we shall have eleven species in Canada instead of ten.

10. **Vine Maple** (*Acer circinatum*, Pursh).—"Small tree, rarely 40 feet ; petioles and

peduncles glabrous ; leaves 7-9 lobed, 2-7 inches across, glabrous ; lobes acute, doubly serrate ; flowers in drooping corymbs with purple sepals."

The beautiful little Vine Maple has quite a limited range in Canada, being confined to Vancouver Island and to the valleys near the coast along the mainland of British Columbia. The leaves of the Vine Maple are paler green than the other species, which gives them a more delicate appearance. They are somewhat similar to the Japanese *Acer palmatum*, and it is possible that the two were originally derived from the same species. The handsome flowers, fruit and leaves, and the graceful appearance of this maple, make it very desirable for ornamental purposes where it will succeed. At Ottawa it is only half hardy, though one specimen has now been nearly hardy since 1897.



FIG. 2376. VIEW IN HON. WILLIAM GIBSON'S GREENHOUSE.

Inverurie is the county seat of the Hon. William Gibson, and is yearly becoming of more interest to the student of horticulture. Mr. Thomas Robertson is gardener, having had eight years' experience in England and fifteen with Mr. James Goldie, of Guelph.

A new greenhouse 24 x 24 feet, attached to the house, was finished in January, 1902, and we give a snap of some plants in one corner. The geranium is remarkably fine, one truss measuring 32 inches in circumference.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

Question Drawer

Poison Ivy.

1300. SIR,—Could you tell me, through the columns of your valuable paper, how to get rid of Poison Ivy? Is there any spray that would kill it.

It is all around the fences on one side of my place, and I cannot get at it to plow it down without removing the fences, and I am told that plowing is not very effective.

C. DAVIS, Toronto.

As far as I am aware, there is no method by which poison Ivy can be completely destroyed by means of spraying. The leaves and parts above the ground might be killed by spraying with some strong acid, but this would not seriously injure the creeping stems below the ground. The only satisfactory way to rid the ground of this troublesome plant is by digging or plowing it, and raking or harrowing of all of the broken stems.

Those who are at all subject to the effects of this poisonous plant should not attempt this work without first protecting the hands by the use of leather mitts.

O. A. C., Guelph.

H. L. HUTT.

A New Cherry.

1301. SIR:—Please name the enclosed cherries. I want to buy some more trees of the variety for planting next spring.

Almira.

D. B. HOOVER.

The samples much resemble Plymouth Rock, a variety which we have just finished gathering, (July 21st.) This in our opinion is one of the best late sweet cherries in our collection, and it is marvellously productive, and of a very pleasant flavor.

Open Letters

BOULEVARDS VERSUS PRIVATE GARDENS

A LETTER FROM

W. F. CLARKE, GUELPH

FAMILIARLY KNOWN FROM CONTRIBUTIONS TO THE MONTREAL WITNESS
UNDER THE NOM DE PLUME OF "LINDENBANK"

SIR,—I have been an advocate of the boulevard system of improving town and city lots in preference to the custom of having division fences, of all sorts and sizes, as a means of securing privacy and safeguarding the contents of the private garden. But I cannot shut my eyes to one very strong incidental objection to the boulevard plan, and that is the fact, for such it really is, as things now are, that it really means the extinction of the private garden. Not boys merely, but grown-up men and women, appear to think that the absence of a fence is a license to roam at will, and that a fence only is a notice to quit trespassing. Gradually we find, here in Guelph, where I live, that gardens are becoming more rare, and while it is quite true that grass and trees are "things of beauty" and "joys forever," no one can pretend that they may wholly supplant the garden with its varied attractions. It strikes me very forcibly that we need some legal protection to guard boulevards from trespass, but still more we need the protection of a better public sentiment in regard to the rights of owners of property, whether it is protected by a fence or by any other intimation of ownership. His-

tory tells us that in King Alfred's days people were so honest that jewelled bracelets and other valuable ornaments might be safely left hanging on trees and nobody but the rightful owners would ever think of touching them. If such things were left thus exposed in these days there would be a perfect scramble for possession of them.

I have a fence around my place yet in the delusive hope of being able to protect flowers and fruit, but I strongly suspect that the boulevard system has had much to do with the prevalence of that loose public sentiment which appears to make many people think they have a right to go wherever there is free passage, and to take whatever they have a fancy for. In my young days it used to be a school maxim and copy headline: "Who steals a pin it is a sin." Is this doctrine taught in our public schools to-day? Garden thieves and trespassers must be taught a few sharp lessons by police magistrates, and even parents must get some schooling in regard to the morals and manners of their children on these points if we are to see any marked improvement.

Guelph, July 1, 1902.

CABBAGES

HOW TO GROW TWO CROPS IN ONE SEASON

BY

S. H. MITCHELL

ST. MARYS, ONT.

SOME years ago I discovered a process by which two crops of good cabbage can be grown successfully on the same land and from the same plants in one season. As it has not been published heretofore, I contribute it for the readers of the *Horticulturist*.

The first crop must be early. Have the ground rich and well prepared; use good, well hardened plants from the middle up to the end of April, according to the season. Set not closer than thirty inches apart each way, so that it will give room for cultivation, hoe often, the oftener the ground is stirred the sooner the crop will mature. It should be cut from the first to the middle of July. Cut the heads carefully, as soon as ready, leaving the stumps as long as possible. Now continue to cultivate the ground often and moderately deep. The large leaves will shade the ground and the stumps from the sun. A new growth will rapidly appear all around the stumps, and the old leaves will drop off.

When the largest shoots are three or four inches long, with a sharp knife cut off all the shoots except the strongest one; cut close to the stump but do not cut into it, keep off all shoots that may appear, except the one for the head.

If your ground is good and rich, you will

get a good head on each stump, eight or ten pounds weight, and of the best quality for fall or winter use.

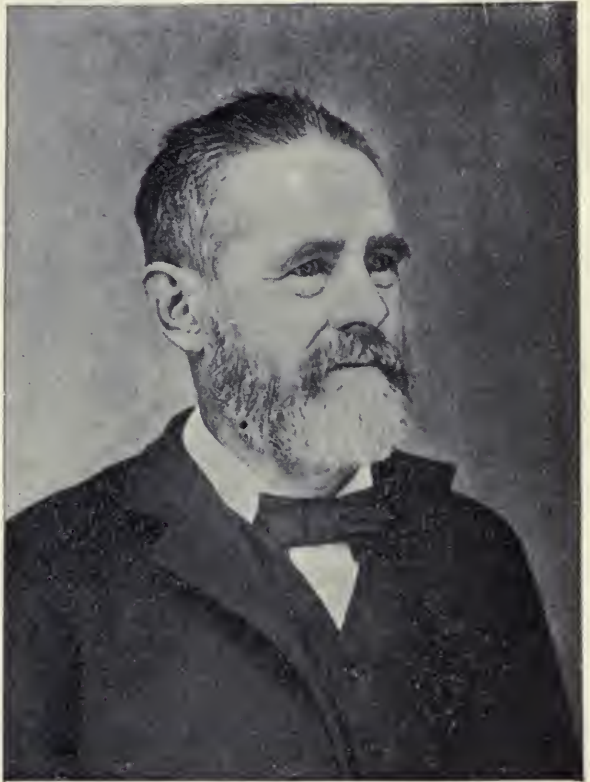


FIG. 1111. DR. T. H. HOSKINS,
of Newport, Vt., who has frequently contributed to this
Journal interesting notes on Hardy Apples,
passed away June 26th.

Notes from the Horticultural Societies

Grimsby.—One of the pleasantest gatherings yet held by the Grimsby Horticultural Society was a Rose Show, held on the lawn of Mr. Ambrose Pettit on Tuesday evening, June 8th. The principal attraction was a hedge of Crimson Rambler roses a quarter of a mile in length, extending along the carriage drive from the road to the house. They were trained upon a wire fence, and were now about three years planted. Every plant was a marvel to behold, with its enormous load of great trusses of gorgeous blooms, their deep crimson color enriched, at the time of

our visit, by the direct rays of the setting sun. We estimated at least 5,000 roses on each plant, or a total, on the hundred plants, of over half a million. Several delegates from the Hamilton Horticultural Society who came down on the evening trolley, said they had never seen anything anywhere to equal this Crimson Rambler hedge, and that it was worth a journey of one hundred miles to see.

A table of roses and other cut flowers was displayed on the verandah, and a brief program of music and recitation as the twilight changed to darkness, concluded the delightful evening party.

FRUIT PRIZE LISTS

A REVISION of Fruit Lists is most urgently needed for the reasons which were well set forth by Prof. Hutt, O. A. C., Guelph, at the recent meeting of the Canadian Association of Fairs and Exhibitions, in Toronto, whose paper we published on page 98.

Any one who reads over the lists of varieties for which prizes are offered at the various fairs, both small and large, will see that they are made with reference to varieties grown, and without any reference to varieties most profitable or best adapted to the section concerned. The planting of many varieties which are useless and unprofitable is thus encouraged. Besides this, we find that we are growing altogether too many varieties of fruit. What we need is to know and recognize the best variety of its season for market and the best for home uses, and then to plant accordingly. In making a shipment of apples to a distant market, a car of one straight variety can be easier sold and at a higher price than if it consist of several varieties. So in planting a commercial orchard we should bear this point in mind.

With these considerations in view, a committee of the Ontario Fruit Growers' Association, consisting of Messrs. W. H. Bunting, of St. Catharines; Prof. H. L. Hutt, of the O. A. C., Guelph, and L. Woolverton, of Grimsby, met together and prepared the following preliminary list of fruits as a basis for the preparation of a fruit prize list for township and county fairs in Ontario. Of course each section must decide for itself whether to choose the list recommended for the northern or southern sections or whether a combination from both lists. The com-

mittee will gladly receive criticisms from the readers of this Journal.

CLASS I—APPLES.

Five specimens of each variety.

For Southern Sections.

(a) COMMERCIAL VARIETIES.

- | | |
|------------------------------|-----------------|
| SEC. | SEC. |
| 1. Baldwin. | 7. Gravenstein. |
| 2. Ben Davis. | 8. Hubbardston. |
| 3. Blenheim. | 9. King. |
| 4. Cranberry. | 10. Ontario. |
| 5. Duchess. | 11. Spy. |
| 6. Greening. | 12. Wealthy. |
| 13. Any other named variety. | |

(b) DOMESTIC VARIETIES.

- | | |
|-----------------|------------------------------|
| SEC. | SEC. |
| 1. Chenango. | 8. Primate. |
| 2. Duchess. | 9. Ribston. |
| 3. Fameuse. | 10. Swazie. |
| 4. Greening. | 11. Spy. |
| 5. Gravenstein. | 12. Wealthy. |
| 6. Jonathan. | 13. Any other named variety. |
| 7. King. | 14. Seedling variety. |

(c) COLLECTIONS.

15. Best collection of 5 above named varieties for export.
16. Best collection of 5 above named varieties for dessert.
17. Best collection of 5 above named varieties for cooking.

(d) CRAB APPLES.

Twelve specimens of each variety.

- | | |
|-------------------|------------------------------|
| SEC. | SEC. |
| 18. Hyslop. | 20. Whitney. |
| 19. Transcendent. | 21. Any other named variety. |

For Northern Sections.

(a) COMMERCIAL AND DOMESTIC VARIETIES.

- | | |
|---------------|--------------------|
| SEC. | SEC. |
| 1. Alexander. | 7. McIntosh. |
| 2. Duchess. | 8. Scott's winter. |

- | | |
|-------------------|------------------|
| 3. Fameuse. | 9. St. Lawrence. |
| 4. Golden Russet. | 10. Transparent. |
| 5. Hibernial. | 11. Wealthy. |
| 6. Longfield. | 12. Wolf River. |

13. Any other named variety.
14. Seedling variety.

(b) COLLECTIONS.

15. Best collection of 5 above named varieties for export.
16. Best collection of 5 above named varieties for dessert.
17. Best collection of 5 above named varieties for cooking.

(c) CRAB APPLES.

Twelve specimens of each variety.

- | | |
|-------------------|------------------------------|
| 18. Hyslop. | 20. Whitney. |
| 19. Transcendent. | 21. Any other named variety. |

CLASS II—GRAPES.

Three bunches of each variety.

(For Southern Sections).

- | | |
|--------------|----------------|
| SEC. | SEC. |
| 1. Agawam. | 7. Lindley. |
| 2. Brighton. | 8. Moore. |
| 3. Campbell. | 9. Niagara. |
| 4. Concord. | 10. Vergennes. |
| 5. Delaware. | 11. Wilder. |
| 6. Diamond. | 12. Worden. |

13. Any other named variety.
14. Seedling variety.
15. Best collection of 5 varieties.

(For Northern Sections).

- | | |
|--|------------|
| SEC. | SEC. |
| 1. Campbell. | 4. Moore. |
| 2. Lindley. | 5. Moyer. |
| 3. Lady. | 6. Worden. |
| 7. Any other named variety. | |
| 8. Best collection of three varieties. | |

CLASS III—PEACHES.

Five specimens of each variety.

- | | |
|--------------------|---------------|
| SEC. | SEC. |
| 1. Alexander. | 7. Old Mixon. |
| 2. Champion. | 8. Salway. |
| 3. Early Crawford. | 9. Smock. |
| 4. Elberta. | 10. Steven. |
| 5. Garfield. | 11. St. John. |
| 6. Ingold. | 12. Triumph. |

13. Any other white flesh variety.
14. Any other yellow flesh variety.
15. Seedling variety.
16. Best collection of 5 varieties.

CLASS IV—PEARS.

Five specimens of each variety for Southern Section.

(a) COMMERCIAL VARIETIES.

- | | |
|------------------------------|--------------|
| SEC. | SEC. |
| 1. Anjou. | 7. Dempsey. |
| 2. Bartlett. | 8. Giffard. |
| 3. Bosc. | 9. Goodale. |
| 4. Clairgeau. | 10. Howell. |
| 5. Clapp. | 11. Keiffer. |
| 6. Duchess. | 12. Louise. |
| 13. Any other named variety. | |

(b) DOMESTIC VARIETIES.

- | | |
|--|----------------|
| SEC. | SEC. |
| 1. Anjou. | 7. Lawrence. |
| 2. Bartlett. | 8. Marguerite. |
| 3. Bosc. | 9. Rosteizer. |
| 4. Clapp. | 10. Seckel. |
| 5. Duchess. | 11. Sheldon. |
| 6. Flemish Beauty. | 12. Wilder. |
| 13. Any other named variety. | |
| 14. Seedling variety. | |
| 15. Best collection of 5 commercial varieties. | |
| 16. Best collection of 5 domestic varieties. | |

(For Northern Section).

- | | |
|--------------------|-----------|
| SEC. | SEC. |
| 1. Anjou. | 2. Clapp. |
| 3. Flemish Beauty. | |

CLASS V—PLUMS.

Twelve of each variety.

(For Southern Sections).

(a) EUROPEAN PLUMS.

- | | |
|---|----------------------|
| SEC. | SEC. |
| 1. Bradshaw. | 7. Purple Egg. |
| 2. German Prune. | 8. Pond. |
| 3. Glass. | 9. Reine Claude. |
| 4. Coe. | 10. Smith's Orleans. |
| 5. Gueii. | 11. Washington. |
| 6. Lombard. | 12. Yellow Egg. |
| 13. Any other named yellow variety. | |
| 14. " " " dark " | |
| 15. Seedling variety. | |
| 16. Best collection of 5 above named varieties. | |

(b) JAPAN PLUMS.

- | | |
|---|------------------------|
| SEC. | SEC. |
| 17. Abundance. | 19. Red June. |
| 18. Burbank. | 20. Any other variety. |
| 21. Best collection of three varieties. | |

(For Northern Sections).

(c) AMERICAN PLUMS.

SEC.	SEC.
1. Aitkin.	9. New Ulm.
2. American Eagle.	10. Silas Wilson.
3. Bixby.	11. Wolf.
4. Cheney.	12. Wyant.

5. City.	13. Any other variety.
6. De Soto	14. Seedling variety.
7. Gaylord.	15. Best collection of
8. Hawkeye.	5 varieties.

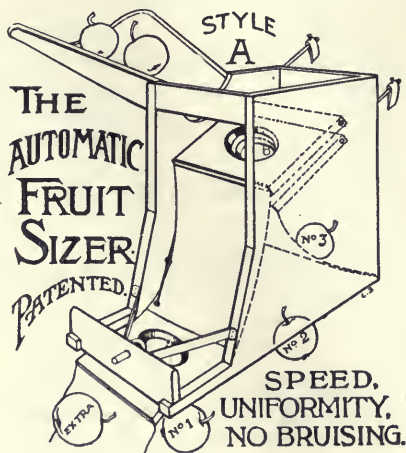
CLASS VI—QUINCES.


SEC.	SEC.
1. Orange.	2. Any other variety.

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FIG. 2378. BRADSHAW PLUM.

THE CANADIAN HORTICULTURIST

SEPTEMBER, 1902

VOLUME XXV



NUMBER 9

BRADSHAW PLUM

(NIAGARA, BLUE IMPERIAL.)

CONSIDERED by many one of the most valuable of the European varieties, whether for home use or market, because of its fine quality, its large size and beautiful appearance.

Tree.—Erect, vigorous, very productive, somewhat subject to black knot.

Fruit.—Large, $2\frac{1}{4}$ x $1\frac{7}{8}$; stalk one inch long, slightly curved; color, reddish purple, with blue bloom, apex round, slightly de-

pressed; suture on one side, broad and shallow.

Flesh.—Color, yellowish, juicy, tender; flavor, rich and sweet; pit, long thin oval, $1\frac{1}{4}$ x $\frac{7}{8}$, partial cling.

Quality.—Dessert, very good; cooking very good.

Value.—Near markets; first-class.

Season.—August 15th to 30th.

Notes and Comments

PLUM GROWING IN ONTARIO

A GREAT advance in plum growing has been made in Ontario during the last twenty years. Before that fruit growing had scarcely developed into a special line of agriculture, and plums especially were neglected because it was generally supposed that the curculio would take them all, as it already did the fruit of the few trees of the garden. But by and by it was found possible to grow the plum in such a quantity as to feed both man and curculio, until now some growers

even count this insect a friendly helper in thinning the crop.

Encouraged in this way large orchards have of late been planted in many parts of Ontario, especially along the southern shore of the Georgian Bay, and the north shore of Lake Erie and the shore bordering the head of Lake Ontario.

THE EUROPEAN PLUMS

FOR excellence of quality no class of plums can be compared to the European or Domestica class. For hundreds of

years these plums have been grown and improved under special cultivation and selection by the gardeners of Europe and Asia, and where these succeed as they do in the southern parts of this Province, there is no reason why they should not be planted freely for commercial purposes. For convenience sake they have been divided into several subclasses, as for example: (1) The Gages, roundish plums, green or yellow in color, with green flesh, including *Reine Claude*, *Green and Imperial Gage*, *Washington* and *General Hand*; (2) the Prunes, oval plums, blue purple in color and rather firm, greenish yellow flesh, including the *German Prunes* and *Prune d' Agen*; (3) the blue plums with large oval fruit, dark blue in color, with firm yellow flesh, including such varieties as *Kingston*, *Quackenbos*, *Shipper* and *Arctic*; and (4) the Red plums, of which the fruit is obovate, purplish with thin skin and soft juicy flesh, as *Bradshaw*, *Victoria*, *Pond*, *Duane* and *Lombard*.

Of course the above distinctions are more or less arbitrary, for, in these days of cross breeding, classes are being more and more obliterated and individuality alone seems to remain for study. For the home garden a large assortment of these plums is most interesting and desirable, but for the commercial orchard it is best to make the list as limited as possible and to plant only three or four of the very best varieties. The time to decide upon what varieties are most profitable for one to grow is just now in plum season when the fruit is being harvested and sold.

PICKING AND MARKET PLUMS

PLUMS need to be handled a little on the green side, especially the "Red Plums," such as *Bradshaw*, which quickly become too ripe to ship, and indeed they cannot well be sent to very distant markets. The Prunes are much better shippers, and this class of plums is being forwarded by

steamer from Collingwood for distribution to towns on the north shore of Lake Huron and points farther west.

Plums in Ontario have usually been packed in a basket containing eleven quarts, but since new sizes have been introduced this basket will be discarded for one holding twelve imperial quarts, which is rather large for plums. A very suitable standard sized basket for choice plums is the $6\frac{2}{3}$ quart basket, which also holds about nine pounds, and will soon become a favorite basket for all kinds of choice tenderfruit in our markets.

TOO MANY VARIETIES OF PLUMS GROWN

IT IS an old saying, that you should not put out all your eggs in one basket, for an accident might cause the loss of all, and no doubt this applies to plums as well as to eggs; and yet the more common mistake is the planting of too many varieties. Not knowing anything about them the young planter is guided almost entirely by the agent or by the nurseryman's catalogue, from which it would seem desirable to plant the whole list, for all of them are lauded most highly. Just here the work of our fruit stations comes in, to determine the varieties best suited to each section for home use and for market, and the reports from the experimenters will prove more valuable each year.

Mr. L. L. Hagar has 2800 bearing plum trees, and has planted such varieties as *Washington*, *Bradshaw*, *Yellow Egg*, *Quackenbos*, *Reine Claude*, etc. The first two varieties have been favorites with him, but this year the *Washington* nearly all dropped off. The *Bradshaws* were too full, and needed thinning by nearly one-half. On the whole, the *Bradshaw* has been a favorite variety for profit in Mr. Hagar's orchard.

"My principal varieties for profit are *Bradshaw*, *Reine Claude*, *Quackenbos*, and *Gueii*," said Mr. Albert Smith, "and these

are all overloaded with fruit this season. The Yellow Egg would be a favorite were it not so much inclined to rot. The Washington is another fine plum, but it is a little tender for shipment."

"I would not place Bradshaw at the head of the list for profit," said Mr. Ira VanDuzer, an experienced Winona fruit grower. "I find it too early for canning purposes—people are not quite ready for putting up plums by the middle of August. The variety which I find most in demand and which I would plant with the most confidence, is the Reine Claude. It is the favorite plum for canning, and indeed no plum equals it in quality for this purpose. It is in great favor and yearly gaining ground; it commands a good price, and is equal to Bradshaw in productiveness, if it does not excel that excellent variety.

SAND VS. CLAY SOIL FOR FRUIT

AN erroneous notion prevails that clay soil is not suitable for fruit culture, whereas the experience of many is quite in favor of clay soil, if not too stiff for cultivation. At "Maplehurst" we have tried both soils for apples, and have taken the largest and finest fruit off clay loam where well cultivated. This latter condition is of course perfectly essential, with such soil, otherwise the very worst results will follow. The lazy farmer had better plant on sand, which may endure neglect, but the industrious cultivator will value his heavier soil for many fruits. Our vineyard at "Maplehurst" is on a deep, rich sandy loam, and produces good crops of Concord grapes, but Mr. F. G. H. Pattison has his vineyard on clay soil, and always surprises us by marketing his Concords a week or so in advance of us, and declares his are sweeter in flavor as well as earlier in season.

Writers on horticulture have always advised planting the cherry on sandy soil, but as stated on page 312, Mr. W. M. Orr, of

Winona, finds his cherry trees on clay loam longer lived and more productive than those planted on sandy loam.

"My Washington trees on sandy soil," said Mr. Albert Smith, "are all dropping all their fruit this year, but those on the clay are holding it very well. We always thought our farm too heavy for fruit growing, but recently we have found that we can produce as good fruit as any one by giving good cultivation. The soil of that plum orchard has received the best of tillage, and yet it has not been plowed for three years; the work is done with the disc and cultivator.

CHERRIES ON CLAY SOIL

THE objection to a rich, deep sandy loam for the cherry lies in its encouraging too great wood growth, which robs the fruit buds of their vigor. We have the Windsor cherry planted on such soil, and our experience has been unfavorable. The trees grow most vigorously, but the fruitage is only moderate, and the cherries seem almost as much inclined to rot as the Napoleon. We harvested our crop before it was fully ripe to save it from rotting, and a week later, about July 25th, Mr. Albert Smith was only beginning to harvest his Elkhorn and Windsor. His orchard was on clay soil; the trees were not half as vigorous in wood growth as ours, but the yield per foot of bearing wood was fully double. Indeed, the productiveness of his trees was enormous, and still more noticeable was the freedom from rot. What else could it be but the difference in soil? Not only were his cherries a heavier crop, but by hanging a week longer they were very much larger and better colored, which gave him a great advantage in selling price for his fruit.

WET SOIL WILL NOT DO

One caution must, however, be observed, whether sandy or clay soil be chosen, and

that is, it must be dry. Standing water about the roots of cherry trees will certainly stunt or else wholly destroy them, and for this reason many writers advise planting sweet cherry trees only on elevated, light, dry soils.

GOOD VARIETIES OF PEARS FOR EXPORT

OF the early varieties of Canadian pears the Clapp's Favorite and the Bartlett are the best, but the latter is sent forward with much the greater risk, because it ripens so rapidly, and unless all the cold storage is perfect from start to finish, they are almost sure to arrive in an over-ripe condition. The Clapp's Favorite is such a beautiful appearing pear, so large in size, and, if gathered at the proper season, so good in flavor, that it seems well adapted for early export. Prof. Robertson, in speaking of Clapp's Favorite in the same report, said: "I would like to read you one other brief reference from The North of England Brokers, Limited, of Manchester: The quality of those you sent was most excellent, especially Clapp's Favorite, but there will have to be great improvement in the cold storage arrangements for transit, and much more care exercised to make the temperature suit the fruit, maintaining the same degree all through the voyage. If they could only be put in this market in the same condition in which they are put on your markets, good business would be done."

Another excellent variety is the Duchess, when grown large, clean and free from curculio knots. Such pears, carefully graded as to size, may be shipped with confidence, for they are slower in ripening and will bring the highest prices in any of the British markets. Where the soil is suitable, probably no variety would be more desirable to plant in quantity for export. Of other varieties we have several that have proved themselves safe to export for profit, such as Bosc, Clairegeau, Diel, Lawrence and Anjou.

The latter is a special favorite. The Kieffer is still on the doubtful list. There is little trouble in its reaching England in perfect condition, the only trouble is in its quality, which is most disappointing, and it is seldom wanted twice by the same buyer except for canning.

APPLES IN BOXES

FOR several years past the writer has been exporting a portion of his finest apples in boxes with good satisfaction. It may not have been altogether due to the boxes, but rather the greater care taken in putting up fancy samples in a small package. Some of our early apples were put up in half bushel cases, but these were too small for apples. Quoting on this point Prof. Robertson says: "I have only little to say about apples. We sent over altogether 146 packages. They were all landed in good condition. Nearly all pleased well, but there was a common complaint that the packages were much too small, holding only from 14 to 16 lbs. net of apples in each. We found these too small. They netted some fair prices, considering the size, but still they did not pay. Taking off the expenses, which were very heavy, these small packages netted anywhere from 5 or 6 cents up to 22 and 25 and 30 cents, which, after all, is a good price for 15 lbs of apples. A 40 or 50 pound case is the case that they want as a minimum for fancy apples. We sent some half bushel and some bushel cases. Here is one report: Apples—Speaking generally, we beg to say that in our judgment these boxes are much too small for apples. We think that apples should never be put, at this time of year, in boxes containing less than 40 lbs. That is still a small package. For the last six weeks very large quantities of English eating apples have come in our market and been sold at an average of six shillings per hundred weight, which were quite as good

a quality and better condition than the shipped ones. Our English apples have not the color that yours have, but we are inclined to think that the expense of wrapping them in paper and putting them in small packages, as was done in this case, is at this time of year inadvisable." The same people wrote me a letter—a letter which I received only yesterday. It is not confidential, therefore I use the names. "By the S. S. Manchester Trader we received from Messrs. Pettit & Son and Mr. Andrews, of Grimsby, Ont., consignments of apples in boxes of about 45 to 50 lbs. gross. The quality and size were good, and such will always command good prices. We have written Messrs. Pettit and Andrews, advising them to send all they can, if they can ship the same quality and size, as we feel sure they will do well. We would be pleased if you would advise any of your shippers if they hold this A 1 stock to ship it here, packed in 40 lbs. net boxes, and the apples wrapped in tissue paper. It is no use sending small or medium sized fruit, as there is plenty of this kind on the market." Those apples, looking down the sales, sold from seven shillings, and in fact one lot of seven cases as high as 9s., from 9s. down to 4s. 6d, per case for everything except the samples. These are substantial good prices for 40 lbs. of apples.

At the same rate of expense as the shipments made by the Department, a package that size would cost about 40 cents for transportation and selling expenses. The freight charges varied according to the rates that prevailed on the ocean, and also as to whether a full carload was sent. If they sold for 7s. with 40 cents to come off, they would net about \$1.28 per box.

EXORBITANT FREIGHT CHARGES

TWENTY five years ago, very little fruit was sent by freight. It was thought necessary to send it by express notwith-

standing the exorbitant rates. Soon however it was found that the Express company was receiving all the profits and that very little was left to the poor fruit grower for his labor. The writer once shipped 300 baskets of peaches to Montreal. They were magnificent Crawfords, but the market was glutted and the whole lot sold for \$111.00, of which \$80.00 was taken by the express company for charges! Such outrageous charges led us to seek the fast freight service, which has been a great relief, but now that immense quantities of fruit are being sent forward, even the freight rates are far too high. Why, for example, should a car of grapes be carried from St. Catharines to Montreal for \$56.00 and other fruit for \$66.00? The fruits are now all put up in the same kind of packages, there is no more trouble handling the one than the other, why then the discrimination? This matter of transportation charges is most important, and has been referred to a committee of our Association, upon which rests the responsibility of bringing before the company the necessity of entirely new classification rates and lower charges for carrying fruit. We would suggest that local fruit growers' associations also take action to support our efforts.

GRADE MARKS FOR APPLES

NOTWITHSTANDING that the Fruit Marks Act permits the use of various terms to designate No. 1, No. 2, and No. 3 apples, it is most desirable in the interests of both seller and buyer that uniform terms should be adopted and defined. Nothing is simpler than the X's suggested by inspectors Lick and Carey at their Prince Edward County meetings; XXX standing for No. 1 fruit, which means that it shall be sound, uniform and at least 90 per cent clear of blemishes; XX for No. 2, and X for No. 3. In addition of course the shipper may add the word "extra" or "fancy" to

denote high color or unusual excellence. The most difficult thing for the ordinary shipper to do will be to assort to anything like a uniform size, unless he is fortunate enough to own a grader. He cannot trust his eye, and unless he is confident of the size, it is unsafe to mark it on the package, lest he lay himself open to a charge of fraud.

In our own packing, we have included size under these grades, as being most convenient in practice; and apples $2\frac{1}{4}$ inches in diameter are placed in grade X; $2\frac{1}{2}$ inches in grade XX, and $2\frac{3}{4}$ inches in grade XXX, while apples above that will be stamped "extra."

THE DUCHESS APPLE

THIS beautiful variety contests the first place as an early summer apple, with the Red Astracan. It does not ripen quite so rapidly, and this gives it the advantage for export. One of the largest Duchess orchards in the world, says our contemporary the Sun, is probably the one of Dr. Young's, at Young's Point near Picton. He has 5000 trees of this one variety from which he began shipping fruit to Montreal the last week in July, and at the same time the writer began shipping Astrachans to Ottawa.

EXPORT OF PEARS

THE export of our pears to the British market will always be more or less regulated by the prices in the Canadian market. When No. 1 pears, averaging $2\frac{1}{2}$ inches in diameter, net us less at home than 40 cents a twelve quart basket, there is little doubt that more money will be made in exporting them. Shipments have been forwarded by us every year now for five years past, and with very few exceptions, and these only when arriving over ripe, pears have netted us satisfactory prices. In the year of 1900 there were 2746 half bushel cases of pears forwarded, and the following extract from Professor Robert-

son's statements in our report will be worth quoting just now, when a good many pear growers are considering the wisdom of making trial shipments to the British market.

"The returns from the pears vary very much, partly owing to the size of the pears and partly owing to the condition of the pears as to ripeness. Some pears landed a little too ripe, "dozy," and then later shipments were landed too green. Pears should be picked when the pips are about to turn brown. In the case of the very tender pears they should be picked *just before the pips turn brown*. If the late pears are packed in that condition they do not ripen in that way and then the English buyer cuts the pear down and looks at that part, if the pips are too brown he says they are going toward decay, and they go into the hands of the jobbers. A very early and tender pear should be picked at an earlier stage of ripeness than the latter pears which do not ripen so quickly. We all know that principle, but we have forgotten to put it in practice in the actual management of the shipping business. Here are the figures of one of the early lots; 55 packages from Mr. Woolverton were sold for 86.4 cents and netted 50 cents at Grimsby. The packages held about 16 or 18 lbs., the large ones a little more than that. The report to me from Manchester was that that was the actual weight of the pears. 95 packages from Mr. Van Duzer were sold at 93.7 cents netting 52.6 cents, and 145 packages of Bartletts, especially good, were sold in Manchester for \$1.97 and netted in Grimsby \$1.54 per case after all expenses were off.

The fruit shipped by D. J. McKinnon & Sons sold as follows; First lot, 74 packages, were sold at \$1.07 in London, and netted 85 cents in Grimsby; Second lot, 77 packages, were sold at \$1.21 in Manchester, and netted 82.2 cents, in Grimsby; Third lot, 65 packages, were sold at \$1.19 in Bristol, and netted 71.1 cents in Grimsby;

Fourth lot, 60 packages, were sold at \$1.23 in London, and netted 64.7 cents in Grimsby; Fifth lot, 11 packages, were sold at \$1.90 in London, and netted \$1.34 in Grimsby; Sixth lot, 32 packages, were sold at \$1.07 in London, and netted 64 cents in Grimsby.

These differences seem inexplicable, but the correspondence and my reports from Grimsby and from our agent in London, indicated that every time when the pears were superior in quality, in size, and just right in condition, they fetched extreme prices and there was a great demand for them; whereas, when the pears were small in size or not in good condition, they struck a poor market. If you read the correspondence you would see the reason for the extreme differences in price in the same markets for fruit from the same shippers. Here are the returns from A. H. Pettit & Son; First lot 6 packages, were sold at \$1.59 in London, and netted \$1.14 in Grimsby; second lot 5 packages, were sold at \$1.22 in Manchester, and netted 83 cents in Grimsby; Third lot, 15 packages, were sold at \$1.21 in Bristol, and netted 72.6 cents in Grimsby; Fourth lot, 80 packages, were sold at \$1.14 in London, and netted 55.5 cents in Grimsby; Fifth lot, 242 packages, were sold at \$1.97 in London, and netted \$1.40 in Grimsby; Sixth lot, 132 packages, were sold at \$1.60 in London, and netted \$1.14 in Grimsby.

The larger the lots the better they sell. If I were to quote you all the large lots only I would give you the best prices in every market. I mean, an appreciable quantity will fetch higher prices in than five or six cases of a sort. All you want at this meeting are instances giving general information. I want to read a few letters in that connection. This is from the Consignee in Covent Garden, London, in regard to the size of pears: "We notice that most of your fruit is small. Now a small pear on this market does not sell well. It must be large, bold, clear

stuff. That is the reason of the success of California Pears." Now, that is the same firm that sold pears of ours later on at good prices when we sent what they wanted. "We think the size of pears you send should be no smaller than 60 or 62 in a case. When you get them up to 100 and 122 in a half bushel case, that is very small."

PROTECT THE FRIENDLY BIRDS

THE fruit grower is rightly indignant when at length after many years of careful cultivation and patient waiting he sees his first crop of beautiful cherries devoured by the Cedar Waxwing; but when he considers the benefit these birds confer, he should "forgive and forget." As advised on page 312, we should rather plant cherry trees purposely to grow food for them, and thus encourage them as helpers in our industry; for although they destroy great quantities of cherries, they are chiefly engaged in destroying insects, which if allowed to increase would be still more harmful. Forbes, in the report of Michigan State Horticultural Society, says, "This bird eats one hundred canker worms daily," and Beall, reporting for the United States Department of Agriculture, says, "The Cedar birds eat a certain amount of insect food at all times, when it can be obtained, and the greatest number of insects in the month of May, with a decrease during the succeeding months until September, when the percentage again rises, and that the young, while in the nest, are fed to a great extent on insect food."

OATS AS A COVER CROP

SINCE the great freeze of 1898, when whole orchards of fruit trees were destroyed and when nearly all the peach orchards in the County of Essex were killed at the root, unless some winter protection was given, the importance of cover crops has become more and more acknowledged



FIG. 2379.

Grass and trees have made this street beautiful.

among fruit growers. Crimson clover has been a favorite with many, while others have used rape and some rye. The latter has been used the last year or two, but unless ploughed under early in the spring, it causes a heavy drain upon the moisture in the soil and is thus an injury to growing plants.

At the meeting of Western New York fruit growers a Michigan fruit grower said that he had had more satisfaction with oats as an orchard cover crop, because it was a complete protection, at the same time dying down so that it did not become a drain upon the soil. Prof. Taft, Horticulturist at the Michigan Agricultural College, has been experimenting along this line, and his report for 1901 says:—

Oats seeded alone as an orchard-cover grew 15 to 18 inches high. They held snow and leaves during the winter, lessened the freezing and thawing of the soil, and also prevented the soil from freezing to as great a depth as on uncovered soils. The lessening of the injury from frost is considered one of the most vitally important results to be secured with orchard cover crops. Where

oats are used as a cover crop the ground in the spring was practically free from weeds and remained moist considerably longer than where other crops were used. The oats were easily worked in with a disk harrow, and it is estimated that the cost of cultivating the orchard when oats were used was fully one-third less than when crimson clover was used. Rape and turnips used as cover crops, while fairly satisfactory, were unsightly during the winter and gave off an offensive odor. Crimson clover seeded with oats was less satisfactory than either sown alone.

THE UP-TO-DATE TOWN

THERE is no more important work before our Horticultural Societies than that of civic improvement. American towns are awakening to the possibilities before them, each emulating the zeal of the other to such an extent that every man of taste and ability as a landscape architect is being pressed into active service. Nor is Ontario far behind, for the lawns and gardens of Hamilton and Toronto never presented a more beautiful appearance, and public sentiment demands an extension of the parks and

boulevards. "The value of the park to my mind," says Mr. Price in the first report of the Iowa Park and Forestry Association,* "is four fold; namely, sanitary, educational, commercial, and as a place of rest. First and primarily it ought to be a place of rest where the laboring class may come after their day's work is done and find to some extent the freedom of the country. Not only to the laboring class, but to all classes the park furnishes a place of rest. With abundance of shade and plenty of lawn, and no signs "Keep off the grass," the park is the popular resort both day and evenings for four months in the year.

In the park, for comfort, we need plenty of seats so that those who come may find vacant seats inviting them to sit down and rest awhile. I want to emphasize the importance of good grass in the park and the perfect liberty to come and go at will. To my mind a good lawn with the sign "Keep off the grass" stuck up is like showing a

person a room covered with a beautiful carpet, and telling him he must not step on it; that it is made to look at, not for use. For real downright comfort and rest there is nothing like good grass where you may stretch out and, as Whitcombe Riley says:

"Lay out there and try to see
Jes how lazy you kin be.
Tumble round and souse your head
In the clover bloom, er pull
Yer straw hat acrost yer eyes
And peak through it at the skies."

EDUCATIONAL VALUE OF A PARK

Strange that we should cling to the notion that all learning must be through books, the driest, duldest way of acquiring it. *There is a royal road to learning*, and that is through the eyes; and we learn many things faster by observation than by reading; and this is especially true of studying nature. The educational value of public park, if planted with a systematic collection of trees and shrubs, is beyond estimation, not only for the ordinary citizen, but also for the students of the schools and colleges, who here see the living subjects of their botanical studies.

*This report may be had for 22c from L. H. Pammel, Secretary, Ames, Iowa.



FIG. 2380. ENTRANCE TO ARNOLD ARBORETUM, BOSTON PARK SYSTEM.



FIG. 2381. AGASSIZ BRIDGE, BOSTON.

Crossed by members of American Park and Out Door Association during their excursion.

LANDSCAPE ART

The time is past when a town or city can afford to simply make an enclosure and call it a park. Public taste is growing rapidly, fostered by our Horticultural and Civic Improvement Societies, and no park should be made without carefully studied plan, by one who is an expert. "Effective landscape gardening," says Klehm in "The Iowa Park and Forestry Association Report," "is an art, which is only acquired by considerable study, taste and judgment on the part of the artist engaged on its execution. The art has reference chiefly to the laying out of grounds and the arrangements and planting of trees, shrubs and plants in such a manner as to eventually produce the most pleasing effect; so far as circumstances in individual cases admits. Definite ideas are absolutely necessary and no attempt should be made in

laying out, or improving grounds, without the fullest consideration being given first and the results calculated to prove certain.

POPULARISING PUBLIC PARKS

THIS was the subject of an interesting address by Dr. Elliot, president of Harvard University, before the American Park and Out Door Association, which met in Boston the first week in August. To enjoy a park, one must do more than ride through it, one must walk about; posts to tie horses are therefore essential, and seats for tired pedestrians. Announcements should be made of the seasons when shrubs and flowers are in bloom, and these should be in such profusion that no restriction will be needed about plucking; the grass should be for use as well as beauty, and no sign, "Keep off the grass," set up; every en-

couragement should be given for eating in the open air ; for sketching and the use of the camera, thus leading the citizen out into contact with nature to become a student of her beauty. It was a courteous thing of the doctor, now over thirty years president of Harvard, to conduct our party through the yards and halls of the great university, pointing out the interesting features.

SCHOOL GARDEN WORK

This was treated by D. J. Crosby, of the Department of Agriculture, Washington, D. C., who divided them into teachers' gardens and pupils' gardens, the former being for the aid to the teaching, and often utilized to help make up the teacher's salary, which is the European method ; and the

latter being entirely in the pupils interest, who is entirely responsible for their keeping. In Europe there are over 100,000 school gardens, and the scheme is being widely adopted in America.

Our excursions about the city were highly educative, affording a fine study of school playgrounds, school gardens, and opportunities of views in the Charleston and Franklin parks, such as not surpassed for picturesque beauty anywhere in North America. Nor must we omit a mention of the Arnold Arboretum with its wonderful collection of trees and shrubs, where of lilacs alone we passed one continuous group of one hundred and sixty varieties.

RAILWAY STATION GROUNDS

NEED OF IMPROVEMENT—GRAND TRUNK
AND CANADIAN PACIFIC STATIONS COM-
PARED WITH BOSTON AND ALBANY RAIL-
WAY STATIONS—NOTES BY THE EDITOR

THE spirit of improvement is so generally discussed that it has even reached the Railway Corporations, and is evidenced in the transformation of the barren spots of sand and rubbish about their stations, bridges and terminals into lovely little lawns, bordered with pretty shrubbery and enlivened with beautiful flowers. The old fashioned stations along the line of the Grand Trunk, which were devoid of architectural features, are now being replaced by others of beautiful designs, and in some cases decorated with beautiful climbers. "It is one object of the American Park and Out Door Association," in the words of ex-president Holden at our Milwaukee meeting, to teach the owners of railroads to build beautiful depots, to lay out pretty gardens and grounds about them, to make the pathway through the country in which their

roads run attractive. It is our mission to go through the school districts of the country, where there is so much neglect, and help school boards to lay out grounds, plant trees, and make handsome play-grounds for the children, and when new school houses are built to make them things of beauty, and not simply dry-goods boxes or brick vaults without form or color or any other attraction."

"I am pleased to note," said president E. J. Parker, "that the New York Central Railroad has recently engaged the services of a landscape architect. I am at present urging upon the officials of the Chicago, Burlington and Quincy Railroad that they stop planting annuals and adopt the use of native shrubs and trees. The annuals are but short lived, passing away with the first frost, and much could be done by the rail-

roads to beautify their stations; have unsightly buildings hidden, and make their roads attractive by judicious planting of trees, shrubs and vines."

In a recent journey to Boston, the writer was particularly charmed with the landscape art displayed about the stations of the Boston and Albany Railroad, shrubbery being so disposed along the carriage drive and turns as to charm the eye without interfering with their usefulness.

"The transformation effected by the Boston and Albany Railroad, says W. H. Manning, Secretary of the American Park and Out Door Association: "is too well known to need much comment. Its stations and surroundings are known all over the country for their beautiful appearance and economy of arrangement. An expert gardener, with a corps of assistants,

gives his entire time to the work which covers sixty acres. Although the road maintains a nursery of hardy plants near Boston, the stations themselves are practically its real nurseries, the plants being thinned out and cuttings made at regular intervals. The scheme of planting this road is unique, in that flowering shrubs and trees

are the sole material used, invariably suitable materials for the combat with cinders, soot, dust and drought, in which the issue is the 'survival of the toughest.' The composition of the shrubs and trees remains beautiful after the leaves have fallen; and the bright berries of autumn and winter are no slight compensation for the mass flowers and verdure of the spring and summer. The 'carpet gardening' about stations on other roads



FIG. 2382. AN ATTRACTIVE RAILWAY STATION.



FIG. 2383. WELL PLANTED HERBACEOUS BORDER.

means only empty beds of dirt and cinders in winter.

"The General Manager of the Grand Rapids and Indiana Railway Company is thoroughly in accord with the spirit of this Association and believes that the object lesson furnished by efforts to improve and beautify station grounds conduces to better care on the part of employees, and further, that the public generally appreciates such efforts, and that wanton trespassing upon or defacement of corporate property is consequently much lessened. Besides planting trees, shrubs and annuals, this road is improving the condition of its buildings, and compelling owners of buildings upon property leased from the company to remove those that are unnecessary and unsightly, and to repair and paint others."

At Warren and Rochdale stations on the Boston and Albany Railroad, we notice that the walks and drives are bordered by beautiful lawns and clumps of shrubbery, the latter so disposed as to hide objectionable features and boundary lines; and at Rochdale, an elevated bank opposite the station, extending from a bridge east of the station to the west of it, affords a capital

opportunity for a continuous planting of shrubbery, backing a fine extent of green lawn. At Palmer, a stone wall opposite the station is thickly covered with Boston Ivy, transforming it into a thing of beauty, while the well-kept lawn to the east is backed by irregular groups of shrubbery, and bordered on the south side by shade trees, while across it runs a gravel walk with a circular summer house with open sides at each approach.

Our Canadian Railways, especially the C.P.R., have begun to devote some attention to the station gardens, but great opportunities are open for transforming into beauty spots the ugly and most repulsive surroundings of our Canadian railway stations. This work should not be done haphazard, for while gardeners may carry out plans they have no genius for design; and to secure the best results a landscape gardener should be engaged to give designs suited to the varied conditions.

This plan has been recently adopted by the Chicago, Milwaukee and St. Paul Railway, whose directors have engaged E. A. McRae, landscape gardener to beautify the station plots with appropriate planting.



FIG. 2384. A RAILWAY STATION YARD.

First impressions of a town are lasting ones, and such impressions are fixed by unattractive conditions about the railroad station. An attractive station, with flowers and vines, will give pleasure to every resident, every visitor and every traveller who passes by.

OUR EXHIBITS AT WOLVERHAMPTON

ENGLISH FRUIT CROP A FAILURE—HOW CANADIANS CAN REACH INLAND TOWNS OF ENGLAND

A LETTER FROM

A. McD. ALLAN, F. R. H. S.

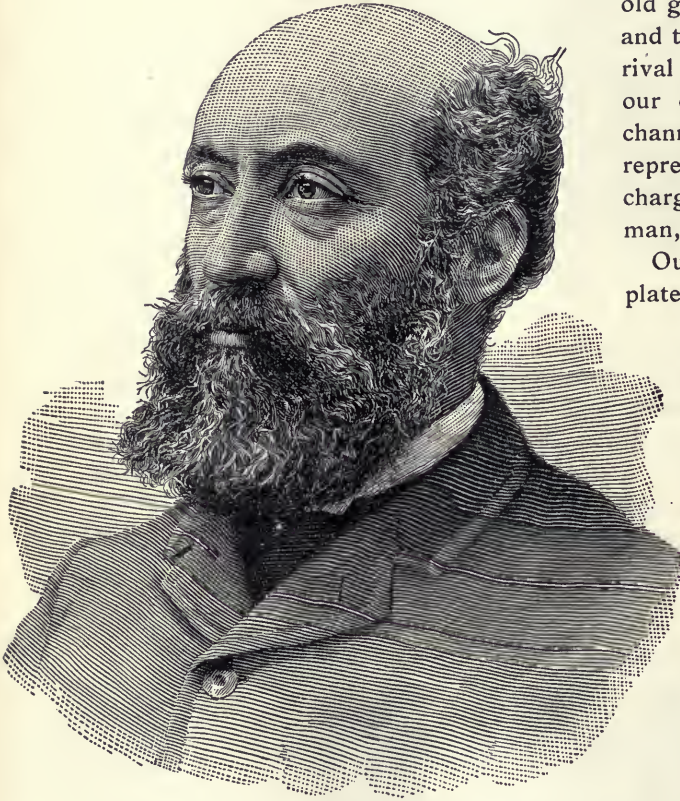


FIG. 2385. A. McD. ALLAN, F. R. H. S.
The Supt. of Horticulture for Canada at the Wolverhampton
Exposition, England.

I FIND a great number of people who would use our canned goods more freely if they were certain of their freshness, and many have suggested that every factory should mark upon every can the year of its make as a guarantee to the consumer. I am told that with the keen competition among grocers many are ready to buy up any kind of cheap or damaged or

old goods for the purpose of cutting prices and taking trade away from his neighboring rival in business. But notwithstanding all our canned goods are working into new channels continually, and the Government representative at the Exhibition, who has charge of the sales department, is a busy man, doing a practical work for Canada.

Our cold storage chamber has double plate glass upon three sides, so that all goods inside can be seen by the public. Our apples form an important part of the exhibit. One pigeon-holed case covers one entire side and is filled with apple specimens, each wound in tissue and showing the stem, the blossom end or cheek, whichever part seems most perfect. Then I have boxes and cases of all kinds and sizes with enough fruit to show our various methods of packing and our different kinds of packages. It would be a very easy matter to secure large contracts for these for our forthcoming crop, but I do not think Mr. Moore, the sales agent, understands the handling of fresh fruits, and will not likely attempt it.

The Canadian pavilion continues to form the chief attraction here, and there seems to be a strong disposition on the part of every dealer to do business with Canada; therefore I trust the advertising given here will be followed up by trade agents from Canada making personal call upon dealers in all provincial towns as well as the cities. The British dealer will be slow to come to us,

but if we go to him we will deal, cautiously, to be sure at first, but with increased orders if we give him the goods he wants and put up the way he wants.

The English dealer is the most stubborn man upon the earth, and yet is open to conviction although he won't admit it; he can go in purchasing our goods and at the same time you can't get him to admit their superiority perhaps. But the fact is, he is simply testing yourself and your brand and you don't know it.

The illness of the King, and disappointments and heavy loss incurred through failure of coronation, has cast a gloom everywhere. But this will soon pass over with returning health of the King. Our illuminations and holidays were celebrated and

attracted great crowds, and with the advent of warm weather we are sure of good daily attendance at the Exhibition.

So far as I have heard, the fruit crop all over England is a failure, certainly in the Midland counties wet weather and frost has destroyed all, and Canada is expected to send in a larger quota than ever. If shippers would arrange to deliver in provincial towns they would meet a hearty demand from dealers. This could easily be done by taking through bills of lading, say to London via Liverpool, with instructions to deliver parcels at various towns upon the route. This would ensure much larger orders, as it would encourage a larger consumption of the Canadian product, which is considered altogether the best in the market.

THE BURLINGTON FRUIT EXPORTERS

NOTES BY THE EDITOR.

MUCH credit is due a few enterprising fruit growers at Burlington for their enterprise as Canadian pioneers in forwarding choice apples and tender fruits in boxes to the British market. The secretary of the company, and of the Burlington Fruit Growers' Association, is Mr. Wm. Fisher, and we found him on the 9th of August busily engaged in paying off his Indian berry pickers. Busy as he was, however, he left his business for a short time to give us some pointers of public interest. His orchard is by no means a small one, including about 2000 plum trees, 3000 pear trees, 200 each of cherry and peach, and about 30 acres of apple trees, and all seemed to be under good and careful cultivation. His soil must be well adapted to strawberries, for his seven acres yielded 48,000 quarts this season, an average of about 7000 quarts an acre. We asked for information about the shipping company.

"Well," said he, "we have no special organization. Five or six of us as fruit growers agree to ship together and make up car lots. For fifteen or twenty years past we have been working together in this way. There are only five or six of us, viz., George E. Fisher, C. J. Davis, J. S. Freeman, W. B. Hopkins, A. W. Peart, and myself, though sometimes we invite others to join us in making up a car. Twelve years ago we shipped the first apples in boxes, three to the barrel. Now we use a trifle smaller box, four to the barrel."

"Do you propose to export your apples and pears this year?"

"Yes, certainly we do, unless we are offered a higher price at home. We always export our apples unless we are offered \$2.50 a barrel or over in our home market. We expect to forward a car of Duchess about the end of August. We would ship more freely if we could fully trust the cold

storage, but until quite recently this has been quite faulty; and last year we had a very unsatisfactory experience with cold storage on ship board. With this exception, however, we have had fairly good success, and sometimes have done remarkably well in the Glasgow market."

APPLE CROP REPORTS NEEDED

"I think," said Mr. W. B. Hopkins, "that crop reports come too much through apple buyers and speculators, who try to make us believe that there is a great surplus and that we must not expect over fifty cents a barrel! No doubt this is good policy on the part of the buyer, but I think the Government, through your journal, ought to give the growers' interests their attention and guard us against speculators."

Well, the reports so far received at our office, we said, indicate a short crop in Europe, and consequently we ought to get good prices in spite of the quantity in our apple sections. During a recent journey by the writer through Maine and Massachusetts, it was a matter of special comment how few apple orchards can be seen, and many that were seen were not heavily loaded. Baldwins especially were light in many places. "Yes," said Mr. Peart, "and such a quantity of apples have dropped during the month of July, that the crop is much less than the early promise."

TOMATOES FOR PROFIT

Noticing that Mr. Peart grows tomatoes for market we asked him for his experience, that we might compare it with Mr. Armstrong, of Queenston. He was two weeks behind the latter in his first shipment, which he made about the middle of July. "I grew tomatoes," he said, "to fill in the season of marketing between the season of currants and blackcaps, and my plum harvest, and find them quite a satisfaction. I usually plant about half an acre. My main crop variety is Dominion Day; Ruby is a trifle earlier, but the former brings me more money, because it is smooth skinned and regular in form. I consider it much better than Atlantic Prize, and quite as early."

PEARS FOR EXPORT

"I have great confidence in the Kieffer for export," said Mr. Fisher. "I think it will yet be highly valued because it carries so well. Nor is it always of poor quality, but sometimes we find it developing a very excellent flavor. I am inclined to believe very much in the individuality of the Kieffer and that some variations in this variety are so distinctive and valuable that they should be continued by propagation from the trees which develop them; I mean such traits as large size, especially bright color, and better quality. For export I would plant Bartlett, Duchess and Kieffer."

The Ontario Department of Agriculture has in press a very valuable bulletin on *The Cold Storage of Fruit*, by Profs. Reynolds and Hutt, of the Agricultural College,

Guelph. Fruit growers interested in the preservation of their products should drop a post card to the Department at Toronto asking for a copy.

OUR BURLINGTON FRUIT STATION

BEST CURRANTS FOR PROFITS—BLACKBERRIES DISCARDED—HOW TO PRUNE THEM

IT was the 8th of August when we visited Mr. A. W. Peart, our experimenter at Freeman. We found him very busy harvesting a heavy crop of oats, and yet he had time to talk about fruit and tell us some of the results of his experimental work. How Mr. Peart can combine agriculture and fruit growing on such a large scale is somewhat surprising, for he has a very large farm which he conducts in first-class manner, and yet has large commercial orchards of apples, pears, plums and cherries and small fruits.

His power to grapple with such conditions is largely due to his university training, for Mr. Peart's case is a clear evidence of the value of education to a farmer in his power to grapple with the problems and work them to a successful issue. "I have two boys," said he, "aged thirteen and fifteen, and I am bringing them up to work. To succeed in a profession or on a farm one must learn preserving application to the thing in hand, and whether they work with their brains at school or with their hands on my farm, I consider this habit the first characteristic to be developed. I am making the boys a little money allowance of late and find that this is an encouragement to them."

THE BEST RED CURRANT

One thing every fruit grower wants to know and that is, what will pay the best, so we asked Mr. Peart for his experience with the many varieties of currants in his experimental plot:

"The Wilder still leads; it is the largest, best in quality and most productive. It is one I would plant commercially in preference to any other. This year it dropped a portion of its foliage, but probably this was due

to the wet weather; still it was not half as bad in this respect as Cherry and Fay. We had always given Cherry the first place and Fay the next on account of the fine size of the berry, but Wilder is also large and so much more productive that we are willing to yield first place to it. Pomona is very promising indeed, but it so much resembles Wilder that it is a question if there is really any difference. Perhaps another season's trial at our Burlington station will settle this question."

THE MOST PRODUCTIVE BLACK CURRANT

There are so many people who grow discouraged with black currants that we inquired particularly of Mr. Peart whether there was any variety better than Naples or Lees: "There are three varieties which I think are superior," said he, "Collins Prolific, Saunders and Black Victoria, though I would hardly throw out Naples; for on heavy rich clay or gravelly loam it is productive and profitable. The bush of Collins is wonderfully vigorous and the most productive of all. Lees and Champion I would reject entirely."

SOILS FOR FRUIT

The secret of success with black currants and indeed with all fruits seems to be the selection of suitable soil, and many fruits that go to wood on rich sandy loam are most productive on heavier soil. The cherry with Mr. Peart succeeds best on high gravelly loam, well drained, and his results on such soil seem almost as marked as those obtained about Winona on clay loam.

BLACKBERRIES FOR PROFIT

Now, since Mr. Peart has all varieties of blackberries under test, we were especially



FIG. 2386. WILDER CURRANT.

interested in knowing which seemed the most profitable: "I think," said he, "that it would be between the old Kittatinny on the one hand and either Agawam or Western Triumph on the other."

But is not Kittatinny subject to orange rust? I know of a plantation of them which is being ruined by this fungus, and most are being dug out entirely. The other varieties do not seem susceptible to this rust.

"Well, at Burlington the Orange Rust does not trouble us, and the Kittatinny being our largest and finest berry, brings the most money in the market; on the other hand, Agawam and Western Triumph are more

productive and therefore give as much money return per acre of plantation. The Gainor is a fine all round variety and very promising. The bush is a strong grower and the berry quite large."

BLACKBERRIES FOR THE AMATEUR

"I do not know of any berry for all purposes better than the Kittatinny, whether for home garden or market. The Maxwell is larger if anything, but not as strong a grower, and the Wachusetts has the advantage of being thornless. For first early I would plant Early King, it is better than Early Harvest."

"Here," continued he, "is a list of varieties that may as well be entirely discarded from our plantations and should no longer be carried by nurserymen in their catalogues, viz.: Wilson's Early, Wilson's Junior, Eldorado, Minnewaski and Lovett's Best."

In this we agree with Mr. Peart, for what use is it for nurserymen to burden themselves growing varieties which are not needed, and if we can counsel fruit growers not to ask for them, they will be soon omitted and our work that much simplified.

PRUNING BLACKBERRIES

There are so many notions about pruning

of blackberries that we inquired especially into the methods adopted about Burlington. At Craighurst Mr. Caston grows his Snyders on long upright canes and gets immense loads. "I believe," said Mr. Peart, "in the most severe pruning for Snyder and Western Triumph, because if you leave too much wood the fruit will dry up; the bush cannot mature all the fruit that would set. I cut them back in July to about $3\frac{1}{2}$ to 4 feet high, telling my boys to cut the canes at the 'height of their eyes,' and then later I shorten the laterals. The Kittatinny does not need such severe pruning, for it never overloads."

FRUITS IN COLD STORAGE

BY

A. McD. ALLAN

GODERICH, ONT.

THERE are some points in our fruits kept in cold storage that may be interesting to members of the association and growers generally.

It is evident that samples for storage should be more carefully selected, and no imperfect apple placed in a package. Stems should not be taken out as this causes often a slight wound which soon begins to rot. The skin must not be broken or decay will ensue. In many kinds a bruise induces decay. In highly colored kinds if the color is perfect the apple will keep longer, hence samples intended for long keeping should be selected from trees that are well opened to the air and sun. Green Baldwins were all worthless while high colored samples were in good order. Ben Davis all look well on the colored cheek but the green sides all come out black, while an occasional high colored one is in fine order where the color is well striped all over. King has not

kept well because it was not picked from the tree soon enough. Wealthy, where not bruised nor stem removed and color evenly distributed, kept well. Spy is a splendid keeper but must not be bruised and color must be well up.

Peck's Pleasant when perfect possesses only a red cheek; it keeps well, but when decay begins it is invariably found in the green surface, and the crimson cheek is perfect. Fameuse, like Wealthy, decays more from bruising, but it does not keep as well as Wealthy.

Stark is a poor keeper, probably because it has poor flavor and coarse texture.

Fallwater has been disappointing, I think chiefly because samples were taken for size without regard to color. Mann, where of even size and well handled, kept well, but even here we find decay does not affect the sunny cheek as readily as the other. Jonathan where not bruised is good yet. Canada

Reds are nearly all good in form, but where lacking in color have turned black, and the fungous spotting appears to affect this variety worse than Spy in inducing decay. Bell-flowers were all gone. Spitzenburg well colored and without bruise has kept well, but where stem was removed in picking rot ensued from that part. Seek should have been picked sooner, I fancy, and only a few specimens were fit for the tables. Golden Russet kept well where the sample showed full maturity in size and coloring, but those from unpruned trees where the sun did not reach them and left them at picking perfectly green were worthless. Roxbury gave the same evidence, as did also Pomme Grise and Swazie. Nonpareil was generally well up in its bright cinnamon color and samples good. Greening did not afford us a sample for the tables and Grimes shared the same fate. Why was this? I think the want of proper cultivation and manuring chiefly as all the samples were under size.

From all I have seen to me it is evident that more care must be taken in studying just when a variety is properly matured and ready for picking instead of the present method of picking "in the fall" generally.

Evidently a King should be picked some time before a Baldwin. We had not a specimen of Ribston because they were picked likely too late; they were more than mature and decay, or its primary elements had set in. Tallman was tall starved specimens and quite unfit for use. Wagener was in the same position, with the exception that where a good colored cheek appeared it was still bright.

Let growers draw a moral from these facts and we will hear them universally crying out, "cultivate, manure, trim and generally care for the orchard if you want good fruit." Study the season of maturing in each variety for this is all important when picking time comes.

Spy held as tenaciously to flavor as any variety in the list, while Ben Davis is, judging from what we have here, one of the most disappointing, for even where the specimen is outwardly perfect in form and color, when opened it is flavorless and often becoming dry and "punky," but then we must remember that it never was blessed with much flavor.

Wolverhampton. Eng.,

July 28th, 1902.

THE FRUIT CROP IN ENGLAND

The reports of a large receiver of fruit in England on the fruit situation, there is as follows:

"The fruit crop here (England) is worse than it has been for years past, and although there may be a fair quantity of early apples there is not likely to be a quantity of sufficient importance to affect the sale of Canadian apples."

Mr. W. A. McKinnon, chief of the fruit

division, who is in England at the present time investigating the question of markets and transportation in the interests of the fruit trade, reports that he has received a cordial reception and has been able to examine several lots of fruit from California and other foreign countries as they have left the steamship. His report will be awaited with great interest by the fruit growers of Ontario.

MEN WHO HAVE SUCCEEDED—VI

J. H. HALE

ELECTRIC CAR TRANSPORTATION—WHOLESALE PACK-
ING—GRADING PEACHES—MUSIC IN PACKING SHED

HAVING once by personal contact and association established a name and reputation for my peaches among the most critical consumers, I have since 1889 entrusted their distribution to commission men in the various cities. I insisted upon these agents visiting the orchard several times each year, so as to be in full touch and sympathy with all the work of production and preparation for the market, and thus be in position to place the fruit intelligently before the consumers.

An electric car line from Hartford having been built along our street in 1895, with a siding right at the farm, I determined to get rid of the long wagon haul by night to the city; and by special contract with the railway people, three cars were arranged to hold the peach baskets. These cars were loaded through the day and early in the evening. In the early morning a motor car would haul the loaded cars to the city, where, along the business streets, just before the cars were required for passenger service, fruit would be unloaded and stacked up in front of the leading stores. My son, who looked after the loading would also check it out, and see that the empty cars were back on the home siding before a new day's work had begun on the farm, so that as far as I can learn, this was the first farm in America to make daily use of electric cars in transporting its produce direct from the farm to the city markets.

The service has been maintained ever since, and the fruit travels in better order

and at less cost than on wagons. The new style market wagon has already attracted much attention. In the season of 1901 peaches from the Hale orchard at Seymour, Conn., were transported by electricity to Bridgeport, fifteen miles away, and the time is not far distant when electric car lines are to be an important factor in the country.

"Thinning out" the little green peaches



FIG. 2387. CARRYING PEACHES BY ELECTRIC RAILWAY.

is carefully practiced. Three hundred large, perfect peaches from one tree will weigh more pounds, fill more crates, and sell for more money than would 1,000 or 1,500 peaches from the same tree overcrowded, and the quality is far superior.

After the thinning season, crate making is continued, wagons fixed, barracks and camps put in order, and everything braced up for the coming rush. A trip is made all



FIG. 2388. GATHERING PEACHES IN. HALE ORCHARDS.

through the consuming territory at the north ; commission men and leading retailers are told fully and freely of the crop prospects, visits are made to the general freight agents and officers of the leading railroads, and a personal interest awakened that is beneficial to all concerned.

As soon as the peaches begin to ripen, the most experienced are placed in charge of gangs of ten and fifteen, which are later increased to forty or fifty. Every picker has his number stencilled on a little canvas sack, in which are tickets of corresponding number, one of which is dropped in the bottom of each basket. All pickers are taught to recognize a matured peach at sight, and they are only touched by hand when ready to be picked.

Careful inspection of the fruit in each basket as the harvest proceeds tones up the quality of the pickers' work. Wagons with hundreds of extra baskets are always on hand, including two or more boys with each gang to "tote" baskets, so the harvesters

may lose no time looking for "empties." Low-down spring wagons, drawn by small mules, creep in and out among the trees and haul the fruit to the main avenues, where the baskets are loaded on large floats on their way to the great central packing house.

White labor is used entirely in the packing house, and at two long tables running the full length of the great building stand the men and women, who, under careful instruction, take the fruit from the field baskets and assort it into three sizes, placing it in canvas trays in front of them. All inferior or over-ripe specimens are set aside for the evaporator. If any baskets show a lack of skill or care in picking the ticket in the bottom tells where to look for the trouble. Notice is given to the inspector, and from him to the field foreman, who gallops away on horseback to brace up the weak brother. The sorters save all the tickets found in the bottom of the baskets, and each is given due credit for tickets turned in.

On the opposite side of the sorting table

stand the packers, who take peaches from the trays and carefully pack the six baskets in one, each crate solidly full. Each grade requires a particular style of pack to get all the baskets rounding and full every time. Several expert instructors in packing work up and down the line constantly watching the work, and when the package is complete the packer's number is put on the crate label and on a ticket on top. A helper supplies a new crate and takes the full one to the nailing table, where it passes final inspection, and if not perfect in every way is sent back for re-packing. Every hour through the day the tickets are taken to the office and a record made of all picking, sorting and packing, so that at all times the superintendent and myself can know just how things are moving, and what each individual is doing.

As soon as covers are nailed on the crates they are rushed into the refrigerator car waiting alongside, and 560 or more crates that go in a car are so spaced that there is a circulation of cold air about each one at all times in transit. These cars are "iced up" twelve to twenty-four hours before loading begins. The warm fruit starts the ice to melting fast, and in a few hours when the fruit is cold, from two to three tons more ice are required to fill the bunkers. In the fifty hours running time to New York the cars are re-iced three times, and those going to New England points once again at Jersey City.

Bad weather in harvesting, a neglect to re-ice a car in transit, arrival at unseasonable hours, bad weather or an over-crowded market on the day of sale—any of these may cause the fruit to sell far below the actual

cost of putting up and delivering, to say nothing of cost of production.

We have loaded as many as thirteen cars in a single day, and ten a day for eight days in succession. There are about thirty peaches to the average basket, six baskets to a crate, five hundred and sixty crates to a car, making for a day producing ten car-loads practically 1,000,000 peaches, each of which is handled three times in the operation



FIG. 2389. PACKING PEACHES.

each day, besides all the other work incidental to such extended packing.

The packing shed is a cool airy place, comfortable at all times in the hottest weather, yet the days are long and busy and noting that the workers were tired and languid by night, four years ago I tried a plan of resting them with music. A good string band of six pieces was hired to play each afternoon from two o'clock until dark or until all the work was finished. There was soft, quiet music for an hour or two, and then quick lively airs until the finish, music all the time.

THE FRUIT MARKS ACT

WHAT THE ACT MEANS AND HOW IT OPERATES

A LETTER FROM

MR. ALEXANDER McNEILL

DOMINION FRUIT INSPECTOR

AFTER the parliament of Canada passed the Fruit Marks Act in 1901, the Minister of Agriculture directed that every opportunity should be afforded the fruit growers and packers of the Dominion to meet its requirements and to fulfil their obligations to the public, and for one year the work of the department in this respect was informational and educational. This year some amendments were made to the Act as originally passed, and to-day the Act, in all its provisions, is "as plain as a pikestaff," and every clause of it so simple that "he who runs may read." No farmer, or fruit grower, or packer who is honest in his endeavors and straightforward in his trading need fear any of its clauses. The Act is being enforced, and the inspectors appointed to execute its requirements have been instructed to do their duty. They are the servants of the crown, Parliament has definitely pronounced its judgment upon the false and fraudulent packing and marking of fruit consignments, and men have been selected to carry out the regulations placed on the statute book for the purpose of protecting honest traders from unprincipled dealers, and of preserving inviolate the fair commercial fame of Canada from unscrupulous packers. In other words, the Act will ensure to the public of the Dominion and to commission agents and the public generally in Great Britain and elsewhere, that the fruit is correctly marked and honestly packed.

The principal sections of the Act are :

Section 4. Every person who, by him-

self or through the agency of another person, packs fruit in a closed package, intended for sale, shall cause the package to be marked in a plain and indelible manner, before it is taken from the premises where it is packed—

(a) With the initials of his Christian name, and his full surname and address;

(b) With the name of the variety or varieties; and

(c) With a designation of the grade of fruit, which shall include one of the following six marks: For fruit of the first quality, No. 1, or XXX; for fruit of the second quality, No. 2, or XX; and for fruit of the third quality, No. 3, or X; but the said mark may be accompanied by any other designation of grade, provided that designation is not inconsistent with, or marked more conspicuously than, the one of the said six marks which is used on the said package.

Section 5. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in a closed package and intended for sale, unless such package is marked as required by the next preceding section.

Section 6. No person shall sell, or offer, expose or have in his possession for sale any fruit packed in a closed package, upon which package is marked any designation which represents such fruit as of No. 1, or XXX, finest, best or extra good quality, unless such fruit consist of well-grown specimens of one variety, sound, of nearly uniform size, of good color for the variety, of normal shape, and not less than

ninety per cent., free from scab, worm holes, bruises and other defects, and properly packed.

Section 7. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in any package in which the faced or shown surface gives a false representation of the contents of such package; and it shall be considered a false representation when more than fifteen per cent of such fruit is substantially smaller in size than, or inferior in grade to, or different in variety from, the faced or shown surface of such package.

Explanations of its application may be taken thus. On packages packed or marked contrary to the provisions of the Act, inspectors may, after notifying the packer by letter or telegram, place the words "falsely packed" or "falsely marked," and a fine of \$40 may be imposed for illegally removing the inspector's brand.

It will be noticed that only "closed packages" need be marked. A closed package is defined to be a box or barrel, the contents of which cannot be seen or inspected when such is closed. Baskets, berry crates or berry boxes even, with veneer covers, are not considered closed packages, and therefore do not require marking. Cranberries and all wild fruit are not subject to the provisions of the Act.

Merchants are held responsible for the fruit they offer for sale (or fruit in their possession for sale), but the original wrongdoer, if found, will in every case be prosecuted.

The penalty for a violation of the law with reference to packing and marking is not less than 25 cents and not more than \$1.00 per package; for removing an inspector's brand, \$40; for obstructing an inspector, \$25 to \$500. The fines are divided equally between the informant and the crown.

Inspectors are given large powers under the Act to enter premises for the purpose of making an examination and to detain shipments of fruit for the same purpose. The packer, however, is amply protected by the stipulation that immediate notice must be given by the inspector to the packer when fruit, which at all times is at the risk of the owner, is branded or detained, and the inspector who exceeds his authority is subject to a heavy penalty.

The main points of the Act may be summed up as follows:

(1) The face of all fruit packages must fairly represent the fruit throughout.

(2) Closed boxes and barrels must be marked with the name and address of the packer, the variety of the fruit, and its grade.

(3) It is an offence within the meaning of the Act to sell, to offer for sale, or to have in possession for sale, fraudulently packed or marked fruit, even when the buyer and seller are ignorant of the fact, as well as when one or both have knowledge of the fact.

(4) The Act does not prevent the packing or selling of any grade of fruit that is properly picked and marked.

(5) The Act does not provide for the inspection of particular lots of fruit at the request of the buyer or seller.

(6) Commission merchants who, after notice, handle fruit put up contrary to the provisions of the Act, will be proceeded against.

(7) There is no definition of grades marked No. 2, or XX; No. 3, or X.

Already the beneficial effect of this Act is being felt, and when it is fully known that dishonesty in packing and describing Canadian fruit does not exist, an enormous impetus will be given to our fruit industry in all the markets of the world. At present inquiries are being made concerning the trans-Atlantic shipments of early Cana-

dian apples. The Department of Agriculture will not take any responsibility, but through the Commissioner of Agriculture and Dairying will assist in securing cool or cold storage space on ocean steamers if early information be given as to the probable quantity, the date of shipment, and the destination desired.

It will pay to send only selected apples of choice individual quality, and packed in

boxes rather than in barrels. It will be necessary to have the apples picked and packed on the green or firm side, so that they may be delivered in the United Kingdom in such a state that they may be handled with a very small percentage of bruised or decayed ones by the retail dealers into whose hands they will go from the wholesale centres.

THE TRANSPORTATION OF APPLES

ADDRESS DELIVERED BY R. J. GRAHAM,
OF BELLEVILLE, BEFORE THE NATIONAL
APPLE SHIPPERS' ASSOCIATION, WHICH
MET AT ROCHESTER, AUGUST 6 AND 7.

A VERY interesting paper on transportation was then read by R. J. Graham. Mr. Graham is Mayor of Belleville, Ont., and is also a large apple shipper, and more particularly a large apple evaporator.

TRANSPORTATION OF APPLES

This subject naturally divides itself into two heads, viz., "How can we transport the fruit?" and "In what kind of a package shall we put it?"

To get an apple from the tree to the consumer at the least cost, and in the most perfect condition, is a problem seriously occupying the attention of all fruit growers and shippers, particularly the members of this association, whose success or failure largely depends on their ability in this direction.

The first step in transportation is from the tree to the basket, where, in most cases, serious damage is done

Apple pickers require brains as well as muscle, and to pick an apple properly requires some study and experience. The

writer has noticed many apples literally pulled from the trees with the fruit spur attached, not only damaging the fruit, but ruining the tree itself for future bearing.

If apples are carefully turned upwards they will break from the fruit spur clean, with the least resistance, and avoid thumb-marks so common in apples, which seriously impair the keeping quality and spoil the appearance, particularly of green or yellow fruit. All shippers should instruct their packers very particularly on this point.

The next move in transportation is from the basket to the barrel or package in which the apples are taken to market. Again they run a most hazardous gauntlet. Most apples are dumped on the ground in heaps, whereas, in the writer's opinion, apples never should touch the ground, but be carefully emptied on a canvas stretcher of simple construction, holding about three or four barrels at most, and about 3½ to 4 feet high, so that the sorter may stand up to his work and use both hands and eyes in this most important transaction.

From the stretcher they should go directly into the package for market or store, graded as the shipper's customers may desire.

Now that the fruit is in the package at the tree, it should be carefully transported to the fruit house, railway or boat landing, at once, on a conveyance having springs. Much fruit is damaged seriously by remaining in barrels on the ground after packing, or by being moved in lumber wagons without springs over rough roads. These can be easily procured to attach to any ordinary wagon, and no fruit grower should be without them.

When we get the apples to the depot we again confront a difficult problem. What kind of a car should we use, or what kind can we secure from the carrier? Arrangements should invariably be made with the railway to furnish the kind of a car desired and as required. No apples should remain at a depot longer than is necessary to load them directly into a car and get away the same evening. For short hauls ventilated cars should be used, and the car not filled to the roof, as frequently happens, but leave ample room for circulation of air. For any distance requiring more than twenty-four hours' railway journey, refrigerator cars should be used, and have them sufficiently iced. From the cars the apples should go direct to destination without further delay, either to the consumer, fruit house or steamer, for ocean transportation. Here again we confront a problem. What kind of space shall we use, or what can we secure?

Apples usually receive little care at the hands of vessel owners and stevedores, are generally handled roughly, and placed in the hold as closely stowed as possible, and in most cases, without ventilation, and if they survive this gauntlet, without being cooked and ruined, the shipper may consider himself fortunate.

Can this be remedied? Certainly the

combined action of such an association as this can do much to bring about the much needed reforms. Let there be an active transportation committee and let us shippers be loyal to their recommendations demanding ventilated space or cool storage.

In Canada, thanks to agitation by those interested, the government has taken this matter in hand, and we have the promise this season of a fair number of vessels fitted with suction fans creating a forced draught through the holds where the apples are stowed. The writer has found chemical storage in transit very unreliable. Temperatures are not often maintained properly, and the fruit often comes out too cold or frosted, and when coming in contact with warmer atmosphere sweat and present a poor appearance to the buyer on first examination, and in some cases produce mould on the fruit or inside of the package.

Again, why should a barrel of apples pay more freight than a barrel of flour? This question has often been asked railway tariff committees, but has never yet been satisfactorily answered. So far as I can learn, the real reason is because they can collect more. They apparently think the business will stand it, but in a year like the present, when there is an abundant crop, cheap transportation would materially increase our markets, and place before the laboring classes, which form the masses of European population, fruit within the reach of their means.

Can this be accomplished? I maintain it can. A barrel of flour weighs about 50 pounds more than a barrel of apples, and usually is carried for about half the price. Does the barrel of apples get any more care from the carriers, any better protection from the weather, any better space, or is there any greater risks incurred? Do they pay any more claims or give any greater attention to the business? So far

as I can ascertain, the only thing they can claim is better despatch en route, as perishable freight is not so often side-tracked, but I have yet to learn of a railway that paid claims on apples for ordinary delay in transit, and I consider the handicap in weight quite sufficient to enable the carriers to move a barrel of apples quite as cheaply as a barrel of flour. Agitation would bring about this much needed reform.

We next consider the various kinds of packages in use and their respective advantages. The barrel is the standard used for perhaps 90 per cent. of the fruit, but is it the best? California has adopted the box of four or five tiers, averaging about 40 pounds net of fruit, and this package is getting quite popular in some localities, and has the advantage of being more suitable for a grocer to handle as package goods. Many people would buy a box of those apples who could not be induced to buy a barrel at a time. When apples are retailed by the pound, much of the fruit is injured by the customer or dealer turning it over, pinching it and examining it in a variety of ways that would not be done in a package. The cost of the package is about the same in each case.

For the home trade and immediate use, the bushel crate is becoming quite popular in Michigan, and has some advantages. It is cheaper than the barrel, saves all ex-

pense of packing, can be easier handled, all the fruit is open to view, any farmer can bring apples to the depot direct from the trees, and is a convenient package for the dealer and consumer when the apples are required for prompt use.

For high class trade a compartment box is coming into use, and has been favorably received in the markets of Europe. These boxes are made to hold various amounts and different size apples, and are made something like an egg case, each apple having a compartment by itself and is thoroughly ventilated. A firm in London, Ontario, are now manufacturing these, samples of which are here. The fruit growers of Niagara district are using them quite extensively. They cost more than a barrel, but for a high class trade there is nothing better. Apples stored in these packages for the Pan-American Exhibition with the Buffalo Cold Storage Co., kept in good condition for a year. One thing is essential to the transportation of apples in any package, viz., air circulation.

I feel convinced that fully 50 per cent. of our apples are ruined from improper transportation from some of the causes referred to, and if we, as apple shippers, ever expect to climb the ladder of success to its topmost step, it can only be accomplished by giving this most important question our earnest consideration.

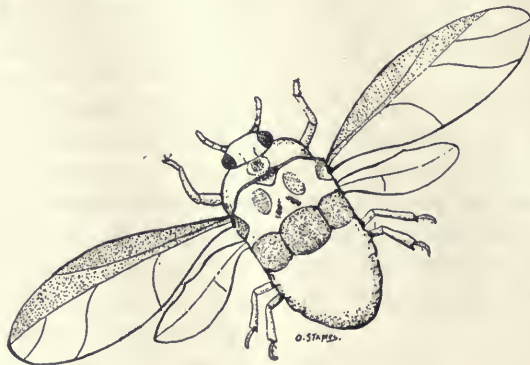


FIG. 2390. THE SPRUCE GALL LOUSE. See page 377.

THE SPRUCE GALL-LOUSE

(CHERMES ABIETIS)

NEW APPLICATION OF FUMIGATION
— PERFECT SUCCESS ATTAINED

A LETTER FROM

G. E. FISHER

PROVINCIAL INSPECTOR, SAN JOSE SCALE

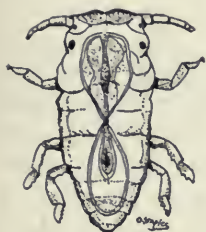


FIG. 2391.

some points of which are said to be as follows :—

The gall louse lays its eggs in the fall, one egg in each section of the bud attacked. The eggs are hatched by the warmth of the following spring. During the balance of its season the insect is viviparous. As many as



FIG. 2392. SPRUCE GALLS.



FIG. 2393.

twenty-five lice have been found in a single cell—which mature and leave the

cell during August and some possibly in July. Treatment in winter is not practicable because of the difficulty of destroying the vitality of eggs, and, as the mature insects are moving in August, treatment in July is likely to be most effective and should

be done at night and when the foliage is dry, to avoid injuring it.

One-seventh to one-sixth of a grain of cyanide to the cubic foot, enclosed with an exposure of forty minutes, will kill the lice without affecting the spruce tree injuriously.

We have some cases of injury where the foliage was wet, a gas of greater strength used, or the work done during the heat of the day.

QUALITY AND THE MARKET

EDUCATE THE TASTE—WHET THE APPETITE
BY GIVING HIGHEST QUALITY—PRODUCT-
IVENESS SECONDARY—FROM AN ADDRESS
BEFORE AMERICAN POMOLOGICAL SOCIETY

BY

CHAS. W. GARFIELD

GRAND RAPIDS, MICH.

A GREAT deal of friction can be avoided in this world by not attempting to bring all individuals with their varied likes and dislikes to the same standard or the same level. The bending of ways to suit the individual peculiarities and personal likings is distinctly in the interest of harmonious intercourse and friendly relationships. When it comes to matters of taste, there is no hard and fast rule with regard to excellence. Two people of equally good sense and wise discrimination and valuable experience may differ widely in their views with regard to the comparative quality of viands and each may be perfectly right. This is specially true when it comes to passing upon the merits of the different varieties of different fruits. A college president of wide travel and broad culture, who had tasted of the fruits of many countries, declared his opinion that a well ripened Concord suited his palate better than any other grape grown. A connoisseur and an old-time member of this society, when this fact was confided to him, laughed outright and said, "he never had tasted a perfect Iona. It will change his mind." Later in the same season our pomological friend sent to the college executive a basket of the best Concords and the best Ionas he could find, and to his great astonishment, the courteous letter of gratitude, which was sent in response, still insisted that the Concord was the better. He may

have been right in spite of all the records of the American Pomological Society for aught I know, and I am not sure but the rank and file of people who eat grapes would support him in his opinion. It is the province of the commercial fruit grower not to antagonize individual tastes, but rather to cater to them in the greatest possible detail and make the purchaser pay well for the gratification of his peculiar tastes. The fruit grower who is in the business for money ought to be willing—for a proper consideration—to humor these peculiarities.

It is in catering to this variety of taste and the difference in judgment concerning the quality of fruits that we find the stimulus for the originator of new and valuable varieties. The growers of fruits are very few in number compared with the consumers, and there is no reason why a single grower should not in the management of his business cater to the tastes of a considerable range of consumers. The fact that there are so many variations in taste and people are so willing to make sacrifices and even pay roundly to suit their likings, is to my mind sufficient reason for putting together in juxtaposition the two prominent words in my talk.

When an originator of fruits heralds with considerable blandishment a new candidate for popular favor, saying, "The tree is a fine grower, hardy in twig and bud, the fruit is of fine color, firm texture, fair quali-

ty and a good shipper," I always question the real, intrinsic value of his new production. "Fair quality" in an advertisement of this kind usually means poor quality. It is a notch lower than any of the three descriptions given by Downing to fruits worthy of mention, namely, good, very good, best. A fruit that does not come up to Downing's lowest is not worthy of dissemination, and there are a good many of the newer candidates advertised and foisted upon the innocent public with great emphasis placed upon their shipping qualities which are unworthy of any place in our catalogues, simply because they are not good enough to eat.

We are constantly expressing our disappointment because our northern fruits take second place whenever some tropical species comes into the market. We regret that people eat oranges, bananas and breadfruit, neglecting our beautiful northern apples, and still, in the face of our discomfiture, we magnify the attributes of such apples as the Baldwin and the Ben Davis because they can be shipped long distances and not be materially injured or bruised by severe handling. Then we expect people to like this class of fruit when placed alongside of the most delicate southern varieties that are shipped to us with the utmost care in packing. People eat Baldwin apples and then say they are not very particularly fond of apples anyway, when, if their tastes could be satisfied by presenting fruit of the quality of the Jonathan or of the Melon, there would be an increased demand for the apple. We flood the market with plums and expect people to buy them, expressing our wonder that so many people should say, "Well, we do not care so very much for plums. Somehow our people have lost their taste for them." The responsibility for this lack of demand lies in the fact that the quality of the fruit is too poor to be attractive to people. There will always be a demand for the finer classes of plums if they can be found upon the market.

If we expect people to like peaches we must not fill them up at the beginning of the season with varieties so entirely lacking in quality as the Alexander class. You must so satisfy the palate as to compel people to increase their wants because you have whetted their appetites.

It is eminently desirable, from the standpoint of the grower, that the people should eat and use more pears, and we say to them, "The pear is an excellent fruit, a healthful fruit, and you ought to consume large quantities of it," and after saying this we hunt through the catalogue to find some variety that we can grow the cheapest and that we can ship the longest distance, and then furnish the people with this kind of stock, at the same time suggesting to them that they ought to eat more pears. We cannot expect an increased demand for pears when we try to satisfy it with the Angouleme and Kieffer. I am willing to be classed as sentimental with regard to some things because I think sentiment has a very high value, but in this contention it is purely a matter of business. If we expect people to increase the consumption of our fruits we must furnish them the quality and the product that will be attractive to them. We must not only do this, but we must educate people so far as we can in their tastes so that they shall demand the best. This is in the interest of higher living and progressive agriculture. It will not do to be constantly excusing ourselves for not furnishing the highest quality of fruits or trying to make poor fruits seem pretty good. A single instance: The Ben Davis apple is not of such quality as to be attractive to one who has a keen discernment of quality in the apple family, and it does not make the matter any better to say to people that the Ben Davis in some localities is not so very bad a fruit and that it is pretty good when you cannot get anything else. It is not a very good advertisement for an apple to have it called for by a hotel man, for the reason that it remains on

the table for a long time, and is an attractive feature.

The prime consideration, it seems to me, in the business of furnishing fine fruits for the people who depend upon the market for their product is good quality. Having perfected this type, then look after its productiveness and its adaptability to a wide range conditions, but always demand a sum that will cover added expenses, and support the demand with the fact that the quality of the fruit warrants it. There is another point that I would like to make in connection with fruit culture, and it will not appeal to extensive orchardists. There are a great many small growers who are willing to put time and care into the growing of a high quality of fruit if in their limited marketing they can find a demand for these high grade fruits at a price that will warrant them in the added expense of growing. In this field there is opportunity for the highest intelligence in fruit growing, and it has attractions that cannot be found in a more extensive busi-

ness. There is opportunity here for a remunerative business, and one that will give the keenest satisfaction. A friend of mine riding with me the other day, noticed that I bowed to a gentleman in a market wagon and asked me who it was. I said, "That is Mr. P——, and she said, "Oh, he is the man who grows those beautiful Jonathan apples we get every year." I said "Yes, he takes a great deal of pains, putting an excellent product upon the market," and she said, "I always get my apples from him because I know they will always be of the highest quality, well selected and carefully handled, and I am willing to pay what he asks, even if the price does seem high. I can afford to pay his prices, because in using his fruit I have no waste." This is the kind of reputation upon which to build a remunerative business in the growing of fruit, and this is the level of fruit growing to which I would like to see the average of our cultivators trending.

BARRELS OR BOXES

The evidence with reference to barrels and boxes appears to be somewhat conflicting. Garcia, Jacobs & Co., London, write that the packing of apples in boxes entails so many incidental expenses that such goods cannot compete with similar fruit packed in barrels. On the other hand, Mr. R. H. Moir and R. T. Polleck, two Glasgow fruit mer-

chants, who handle a very large quantity of fruit retail, say that they prefer boxes and small packages and offer as an explanation of contra opinion of the commission men, the statement that more goods would be handled without passing through the hands of the middle man if the packages were smaller.





SEPTEMBER NOTES

BY

WM. HUNT

GUELPH, ONT.

TENDER PLANTS.—All tender greenhouse and window plants that are required for winter decorative purposes or for beautifying the garden next season will have to be closely watched if they are still out of doors, so as to prevent unpleasant and damaging surprises by early frost. Stock plants or cuttings of coleus, heliotrope, achyranthes, salvias and ageratum should be at once secured if not already attended to, as these plants are susceptible to cold, chilly weather and are easily damaged by the slightest frost. Petunias, verbenas and geraniums being of a hardier nature may perhaps be safe until about the end of the month, but it is always well to be on the safe side and secure a stock of cuttings or plants before they are damaged by frost. Plant growth that has been frozen only very slightly is often difficult to propagate, even if the growth does not appear to have been damaged. Begonias, cactus, calla lilies, agaves and all plants of a similar tender nature should be taken indoors when chilly,

cold weather prevails. Palms, cordylines, oleanders, hydrangeas and even aspidistras may perhaps be left outside until toward the end of the month, at least in the day time. Fresh air and a fair amount of sunshine out of doors is much better for plants than the close dry atmosphere of a dwelling house, or the super-heated temperature of a greenhouse at this season of the year, as long as the plants are safe from frost. The temporary protection of a sash and frame, or even the protection afforded by a verandah, or some light covering placed over plants for a few nights, will often extend their period of out door life for several weeks at this season of the year, as it is seldom that early frosts prolong their visits beyond one or two nights.

Chrysanthemums.—Although these plants are almost hardy, they must not be exposed to frost, or even to continued cold wet weather, if good flowering results are to be obtained. Where only one or two are grown in pots for the window they can be lifted

under cover for the night and set out of doors again in the morning. If the plants are put into the greenhouse or even into frames, they must be given plenty of air and water, especially on warm sunny days. Syringing, or sprinkling the foliage early in the day on hot days, will also benefit them materially. Disbudding will also soon have to be attended to with chrysanthemums. This is done by picking off with the thumb and finger all the lower buds as soon as they are about the size of small peas, leaving only one or perhaps two of the top or terminal buds at the top of each branch or stem. By taking off these lateral buds, fewer but very much larger flowers are obtained than if all the buds were left to mature. As soon as the buds are formed on the plants liquid manure should be given them about once a week until the flowers are fully developed. Tobacco water or fumigating with tobacco are the most effectual remedies for the attacks of black or green fly on chrysanthemums. The black fly is oftentimes very persistent in its attacks, and close watch will have to be kept to prevent its appearance. As tobacco stems or the raw leaf of tobacco is sometimes difficult to obtain, a good substitute can be found by using a cheap cigar for making tobacco water or for fumigating plants with. By pouring about a quart of boiling water on a cigar after it has been unrolled, sufficient tobacco water can be obtained to sprinkle a number of plants with. The solution must be allowed to cool before using. If any of the tobacco water is left over it can be kept a long time in a bottle tightly corked. Start with the tobacco solution before the plants are badly infested, as, if the aphid or fly once gets into the flowers, they cannot be eradicated without injuring the blossoms.

Roman Hyacinths.—If the beautiful white sweet scented spikes of these early flowering hyacinths are wanted for Christmas time the bulbs should be secured and potted as early

as it is possible to get them. By planting two or three bulbs in a four or five inch pot early in September and plunging the pot outside in ashes or sand—or even sandy soil—until the bulbs have made good root, which will be in three or four weeks, and then placing the pot in the window or greenhouse, these useful winter flowering bulbs can be had in flower even before Christmas if required. Plant the bulbs about half an inch under the surface of the soil so that the tops of the bulbs are well covered, water them well once and then plunge or bury the pot in an upright position until the bulbs are well rooted and you will be rewarded by a nice pot of sweet-scented flowers for your trouble. The soil in the pot should never be allowed to get quite dry whilst the plant is growing and when in flower. The pink and blue varieties of the Roman Hyacinths are very pretty, but not as early or as easily grown. By potting a few of these bulbs every two or three weeks until November or even later, a succession of their beautiful blooms may be had until quite late in the spring. These later planted bulbs must, however, be covered with ashes or soil in a cool cellar or shed, or in a box or frame out of doors where they can be covered and protected from severe frosts whilst making roots as before mentioned.

Cannas.—As soon as the first frosts have touched the foliage of cannas the stalks should be cut off about six or eight inches above the ground. The roots should then be dug up entire with a little earth adhering to them and placed in a dry shed or barn for a week or two where frost cannot reach them. Before severe frosts they should be placed in a fairly dry warm cellar, or laid under the benches in a greenhouse, where there is very little moisture to drip on them. A temperature of about 40° or 45° suits them very well when dormant in winter.

Dahlias.—These should be treated much in the same way as recommended for cannas,

with the exception that the dahlia roots will keep well in a slightly lower temperature. Packing the roots in dry sand in a cool, dry cellar is probably the best method of wintering dahlia roots. The sand will prevent the tubers from becoming too dry, as this latter

condition is almost as dangerous to dahlia roots in winter as an excess of heat and moisture. Dry the dahlia roots fairly well before stowing them away finally for the winter.

THE RAMBLER ROSES

BY

T. H. RACE, MITCHELL



A WIRE FENCE COVERED WITH CRIMSON RAMBLER ROSES
AT MR. AMBROSE PETTIT'S

FIG. 2394.

READERS of *The Horticulturist* were very much interested in the description of the Crimson Rambler rose hedge in last month's issue. The sight described on the farm of Mr. Ambrose Pettit must have been a very beautiful one. But let me add that handsome as the Crimson Rambler is the Pink Rambler is not to be despised or overlooked.

I had a small cluster of Pink Ramblers on my grounds this season that was very much admired and attracted quite as much attention as the crimsons. The pink blooms about two weeks earlier than the crimson,

and its individual blooms are not so double or heavy, but its clusters are more numerous, and when fully out the effect is very fine. I intend to plant it in a hedge, in alternate order with the crimson, three feet apart, and intermingle the shoots in such a way as to have a continuous hedge of both, or each in its blooming season. By that plan I hope to double the length of the season in which my hedge will be in bloom, first in pink then in crimson. And for real beauty I would not say that the last stage would be prettier than the first.

THE TRAILING ARBUTUS

(EPIGEA REPENS.)

COMMON NAMES: TRAILING ARBUTUS, GROUND LAUREL, MAYFLOWER

BY

MRS. A. GILCHRIST

TORONTO JUNCTION

This many-named plant belongs to the royal order of plants Ericaceae, or true Heath family. It is found on sandy soil, especially in the shade of pines, and is common with us near Toronto, but in many parts of the country it is quite unknown.

There are but two species, our own *Epigea Repens*, and one in Japan called *Asiatica*, not yet in cultivation. In New England it is the most popular of all the native flowers, and is known as the May flower, while the Mayflower of English history and literature is the Hawthorn. Then many people give the *Hepatica* the name Mayflower; indeed, if you go into one hundred schools in our province and ask the boys and girls what is the first native flower they may expect to find in the spring, ninety-nine will tell you that it is the Mayflower, by which they mean the *Hepatica*. No one more dearly loves our common English or local names than I do, but sometimes local names are most conflicting, and in teaching the young it is just as easy for them to know the plants and flowers by their proper names, for the common name often means a different plant altogether. But I am wandering away from our sweet, wee *Arbutus*, a flower which is worthy of a place in every garden. It has been called one of the

most exquisite of nature's fondlings, a gem worthy of a rare setting. The reader will have little difficulty in locating it, even if it may be covered with leaves, for its perfume is of such a sweet peculiar fragrance. Its leaves are evergreen, glossy above; if the winter has been severe you will sometimes find the leaves injured and of a russet brown color. The flowers are of two kinds; the female flower being large and white, while the male flower is smaller and pink or somewhat rosy in color. The question is often asked, Can the *Arbutus* be cultivated in the garden? Certainly, if properly lifted and cared for, but is like all the rest of its family, a little difficult to transplant. Try and secure small, young plants, lift them with a good ball of earth, be careful not to injure the roots, replant in a shaded position, protect in winter with leaves, as nature does, and you may expect to succeed. But, like the thrush, it belongs to the woods by inheritance. We quite frequently find it in bloom before the first of May, it depends on the season. In going through the woods I find the buds showing now, the first week in April, yet they may not be fully developed for some time. In the words of Longfellow:

"And with childlike credulous affection
We behold the tender buds expand,
Emblems of our own great resurrection,
Emblems of the bright and better land."

THE YELLOW DAY LILY

(HEMEROCALIS FLAVA)

BY THE EDITOR.



FIG. 2394. YELLOW DAY LILY.

IN a large collection of Hardy Perennials set at Maplehurst last spring were six of these Day Lilies, and though this variety is by no means uncommon, yet it at once arrests the attention of the passer by, with the pure yellow color of its petals. The flower is well called Day Lily, each bloom is so short lived, but other flowers so rapidly replace the faded ones, that one scarcely observes this characteristic.

The flower is orange yellow (flava) very

erect and very fragrant. It came into bloom this season about the 6th of June, and the cutting for the photograph was made on 10th of June.

The plant is a native of South Europe, Western Siberia and Japan, and was introduced into England in 1596. There are several species of *Hemerocalis*, but this one seems to be the general favorite. We notice a reference to this lily in the two leading horticultural journals of recent years, both of which we regret to say are now discontinued. The first from "The Garden" and English journal: *H. flava* is one of the best of the bold herbaceous plants flowering throughout June, when its rich yellow, trumpet shaped blossoms are appearing day by day, and though not lasting long individually, the profusion is so great that the waning blossoms are not missed. Always a vigorous subject it should be planted only in such company, or in a group where its presence will not interfere with things more frail. Besides being a border plant, it is also most useful for early forcing in pots and greenhouses. The second from "Garden and Forest" of New York city: Near a group of white peonies, or a group of grey, blue or purple varieties of garden Irises, no combination can be more beautiful. All it wants is room, food and sunshine to make a most magnificent display. A large vase, filled with a mass of these long-stemmed flowers, makes a really imposing display.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution plants and trees.

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

REPORT OF FRUIT INSTITUTES HELD IN PRINCE EDWARD COUNTY

BY E. LICK, OSHAWA, DOMINION FRUIT INSPECTOR

THE fruit interests of this county are very large. Owing to the peculiar form and varied character of the soil, together with the proximity of water, there is perhaps no part of the Province of Ontario better situated for the production of apples.

The special mission of this series of meetings was to illustrate thinning, and talk about packing and the Fruit Marks Act. At many of the meetings the growing of fruit came in for a share of the time. Fifteen meetings were held in all, beginning at Albury on the north side of the county, and ending at Consecon at the west end. The

meetings were held in the forenoon and afternoon, except in the case of one day, when only an afternoon meeting was held.

The first meeting, at Mr. S. Dempsey's, was most largely attended, fifty or sixty being present. The attendance at most of the other meetings was from twelve to twenty. Mr. Lick had the assistance of Mr. Carey, of Cobourg, and later Prof. Lochhead, of Guelph. It was to be regretted that many were detained from attending by backward haying and ripe rye or fall wheat.

Among the important points emphasized were the following, viz :

1. The importance of cleanliness and care of the orchard.
2. The necessity of thinning, if best fruit is to be obtained. This point was well illustrated at Mr. John Laird's orchard, Picton. Mr. Laird thinned Duchess some weeks before, and a very great improvement in size could be noticed.
3. The desirability of whole sections devoting their energies along certain lines, such as apple growing, dairying, etc., was clearly brought out.
4. The necessity of spraying if scab is to

be overcome, was never so clearly shown than in the case of Albert MacDonald, Conseccon, who said: "I have lost \$1,000 by not spraying."

The question of insects was handled by Prof. Lochhead in a very helpful way. The Fruit Marks Act and packing of apples for sale was of great interest at nearly every meeting. Many expressions of regret that farmers could not attend were heard and universal approval of this practical way of reaching the fruit growers.

FRUIT GROWING ON ST. JOSEPH AND MANITOULIN ISLANDS

BY PROF. W. LOCHHEAD, AGRICULTURAL COLLEGE, GUELPH.

PROF. LOCHHEAD having been sent out by the Superintendent of Farmers' Institutes to meetings at Manitoulin and St. Joseph Islands, writes to Mr. Creelman a newsy letter in reference to the agricultural and horticultural conditions of these islands. Mr. Creelman sends us an extract from that portion of Prof. Lochhead's letter dealing with fruit growing particularly.

"I have been making this hotel my headquarters for three days. Ever since coming from Manitawaning, I have been making excursions to various parts to get information regarding the capabilities of St. Joseph's Island. My opinion of St. Joe has to a large extent changed since I came here. I had the idea that the soil and rock were very much like those of the Grand Manitoulin, but such is not the case. Although the underlying rocks are probably the same—Silurian limestone—yet the soil and sub-soil have great depth. In fact, I have nowhere seen an exposure thus far in my travels. In Manitoulin the great fires had burnt away everything of a vegetable nature in the soil, and left it blue or white. Here,

however, there is as a rule much humus in the soil. In many places and on large areas, too, the clay is cold and heavy, and in other places the soil is quite sandy.

"I visited several farms. I saw splendid crops of peas, although they tell me this is an off year on clay land for peas, an account of the wet May and April. Oats, wheat and barley look well and give evidence of an abundant crop.

"From what I can gather this island is quite suitable for fruit growing. I saw admirable yields of apples, Duchess and Alexander among the early varieties, and Longfield, Yellow Transparent and Wealthy as early winter apples. The Japan plums, Burbank and Abundance and Ogon, are quite hardy and are great bearers, with Mr. Chas. Young, of Richards Landing. To show how fruit growing may be made lucrative Mr. Young tells me that he got \$65 for the strawberries he sold from a patch not one-fifth acre in extent (after taking all he wanted for his own use). He got 10 cents a box at the 'Soo'. The 'Soo' is the ready market for all produce grown in St. Joe."

Question Drawer

Black Knot on Cherry and Plum.

1302. SIR,—Would you kindly inform me if spraying the trees with Bordeaux mixture is effectual, not only in keeping down but also in getting rid of the Knot until they are again affected by other trees. Also, how early should the spraying be commenced, and how often repeated?

Listowel.

A. J. COLLINS.

Reply by Prof. Lochhead, O. A. C., Guelph, Ont.:

It is quite within the power of the fruit grower not only to control but also to prevent the spread of the Black Knot. If careful spraying with Bordeaux mixture (4-4-40 formula) is carried on regularly the Knots will gradually disappear by breaking off. The disease is more profitably controlled by cutting off diseased parts and burning them in early spring, and by spraying with the Bordeaux twice or thrice in spring and summer (such is necessary for the prevention of the *brown rot* and the *shot hole fungus*). In districts where the Black Knot was formerly very injurious, but where cutting and spraying have been adopted, the disease has practically disappeared.

The best times to spray are: (1) When leaf buds are opening; (2) When fruit is formed; (3) Two weeks later. The spores of the Black Knot are mainly set free in early spring and in June, consequently the Bordeaux should be applied at these times at any rate to kill the germinating spores.

Lecanium Scale on Japanese Honeysuckle.

1303. SIR,—I enclose you some twigs of my Japan honeysuckle affected with some kind of scale. Could you tell me what it is?

A SUBSCRIBER.

Reply by Prof. Lochhead, O. A. C., Guelph, Ont.:

The dark brown scales on the Japanese honeysuckle sent me are *Lecanium Scale Insects*. Similar scales are often found in

both greenhouse and orchard plants. As a rule they lay eggs, are but single-brooded, and pass the winter in the half-grown condition. On cherry there is the cherry scale (*Lecanium Cerasifex*); on blackberries at Trenton last year the blackberry scale (*Lecanium Fitchi*); on greenhouse lemons, etc., the *Lecanium Hesperidum*; on currants the currant scale (*Lecanium Ribis*); on peach, maple, etc., the peach *Lecanium* (*L. Nigrofasciatum*); and on plums the New York plum scale (*Lecanium Prunusatri*). With the last named scale, the young pass the winter on the twigs, and begin to move in April to new feeding grounds on the newer twigs. Before the end of June these become full-grown, and begin egg-laying. In early August the young lice emerge from the eggs and crawl out on the leaves. In September they migrate back to the twigs, where they are to be found in winter clustered in rows on the under surface.

The life-history of the honeysuckle scale will likely be somewhat similar to that of the New York plum scale.

Millipedes Eating Strawberries.

1304. SIR,—Can you give me a remedy for the small brownish wire-worm that eats strawberries?

I do not mean the soft white grub that eats the plant, but the harder and smaller insect that eats the fruit itself.

By doing so, you would greatly oblige.

Montreal.

COLIN D. MORGAN.

Reply by Prof. Lochhead, O. A. C., Guelph, Ont.:

The hard, wiry, worm-like creatures which you send me are **millipedes**, and are sometimes mistaken for **wire-worms**. In England, they are often called "False Wire-worms," and with us "Galley-worms." They do not belong to the insects, but to the Myriapods. They never have wings,

and differ little in appearance throughout their lives. When at rest they coil their bodies. They are omnivorous feeders. Sometimes their food consists of grubs, worms and slugs; and sometimes such cultivated plants as mangolds, potatoes, cabbage roots, and even the roots of cereals. Once in a while we hear of them eating ears of Indian corn and strawberries. The eggs are laid in holes in the ground in the spring, and it is possible that the adults are carried from one place to another in mulches and manures.

Many remedies have been tried. Traps are possibly as practicable as any. Poisoned baits of bran or potatoes, or mangolds have been used to advantage.

A dressing of fresh gas-lime to the soil has been recommended.

Thorough cultivation of the land, and clean farming, by the removal of old rotten roots and rubbish, will also pay where the land becomes infested.

Killing Mustard By Spraying.

1305. SIR,—I saw an item in the press about some man teaching the farmers how to kill wild mustard by spraying it with some chemical solution. Can you give me the formula?

A SUBSCRIBER AT LONDON.

Recent experiments, carried on first in

France, then in England, and latterly in Canada, both at the Dominion Experimental Farm, Ottawa, and at the Ontario Agricultural College, Guelph, show conclusively that growing wild mustard (*Brassica sinapistrum*) can be killed by spraying the plants with a two per cent. solution of copper sulphate or bluestone—one pound of bluestone being dissolved in 5 gallons of water.

With an ordinary spray pump the infested plots may be sprayed. A fine nozzle should be used, and the application made on a clear day in June, just as the mustard is coming into bloom. If applied carefully, the bluestone solution will not harm crops of oats, barley or wheat, in which the mustard is growing. In cases of severe infestation, where hand pulling is clearly out of the question, this method of spraying should come quickly into general use; for, although the mustard seeds in the ground are untouched, the plants which come up are prevented from re-seeding the ground. It becomes, then, merely a question of a few years before a badly infested plot becomes clean, if the plants are sprayed annually.

W. LOCHHEAD.

O.A.C., Guelph, Aug. 2nd, 1902.

Open Letters

The Elm as a Shade Tree.

SIR,—Fifty years ago at a meeting of the Horticultural Society of New York, a Mr. Stephen Ainsworth, a fruit grower south of Rochester, arose and said, "Fellow fruit growers plant trees as beginners that will bear grief well." It is one of the best speeches I ever heard at a meeting of horticulturists. It was very brief, but full of meat for digestion and consideration. Mr.

A. McNeil in your August number calls attention to the American Elm as a shade and ornamental tree. It is beautiful, majestic, hardy, attains great size, is as free as any from insects, worms and other pests, holds its foliage well, the best shade tree in America, will branch high and therefore not darken front windows, will form a lofty arch over the street if planted on both sides.

And over and above all it bears grief well.

In this respect it has no equal. It is a very long lived tree and when a man has planted an elm and protected it until it has been well established, he may rest assured that it

will give shade to many generations after he has passed away.

FRANCIS WAYLAND GLEN.

Notes from the Horticultural Societies

New Horticultural Society Formed.—Mr. Frank J. Barber, of Georgetown, writes us as follows: I beg to report that on the 2nd ult., a horticultural society was formed in Georgetown with very bright prospects. A good membership has already been secured and a progressive Board of Directors appointed. The following is the list of officers:

President, Mr. John R. Barber; 1st vice-pres., Dr. Wm. T. Roe; 2nd vice-pres., Miss Young; sec.-treas., Frank J. Barber.

We are arranging for our first public meeting this fall. (Sgd.) Frank J. Barber, secretary.

We are glad to note advancement in horticultural work. Besides the formation of Local Fruit Growers' Associations throughout the agricultural districts of the province, the towns are taking a great interest in horticultural work. Besides floriculture, which has always attracted considerable attention from amateurs and practical florists, many citizens and their families are becoming interested in horticultural study.

One line of horticultural work that has become quite prominent and is being fostered and encouraged by the horticultural societies is the improvement of parks and private residences in towns and cities. This is doing much to increase the value of property in these towns. Our horti-

cultural societies are taking hold of this work in enhancing the general appearance and beauty of urban localities. It will be noticed that the organ of the Provincial Fruit Growers' Association, the Canadian Horticulturist, has been giving attention to this branch of horticulture in its article on "The Home Beautiful."

Advancement along more practical lines of horticultural work is illustrated in the following report of the Port Elgin Branch of the Lake Huron Fruit Growers' Association:

"We held a monthly meeting on May 31st and considering the busy time of the year, had a very good attendance. The topic of the meeting was 'Insects Injurious to Plant Life.' It was taken up by Mr. James Muir, who handled the subject to perfection. After the reading of the paper a discussion, which was very interesting, took place on this subject.

"It was decided to hold our meetings on the last Saturday of every month at 3 p.m. Our president, Mr. Wm. George, was appointed delegate to the district meeting in Hanover, on June 11th. There seems to be an increased interest taken in all the meetings and good results are expected in the working of the association in this district."

(Sgd.) W. A. Mitchell, Secretary.

Our Book Table.

FORESTRY OF MINNESOTA, by Samuel B. Green, Professor of Horticulture, the University of Minnesota, published by the Geological and Natural History Society of Minnesota, 1902. Second edition, postpaid, 37 cents.

This is one of the finest publications we know, on forestry. It is full of interest from beginning to end, a book of nearly 400 pages, in cloth. Part I deals with such subjects as The Tree, The Forest, Forest Influence, Propagation, Nursery Practice, Forest Protection, Forest Mensuration, Wood and its uses, etc. Part 2 with the Trees of Minnesota, which are much the same as those of Ontario.

IRRIGATION FARMING. A handbook for the practical application of water in the production of crops; by Lute Wilcox. New edition, revised, enlarged and rewritten. Since the publication of

the first edition of "Irrigation Farming," six years since, so many important improvements in irrigation have been made, and new and better methods introduced, that in order to keep abreast with the times a new edition of this standard work has become a necessity. Realizing this need, the author has prepared the present volume, which has been largely rewritten, entirely reset, and considerably enlarged so as to present in systematic sequence and concise form everything pertaining to the most modern irrigation methods and means, thus making it the most complete manual on the subject ever published. As the author has devoted the greater portion of his life to practical irrigation work, and is the recognized authority on the whole subject of irrigation, from a practical standpoint, every statement made in this book is based on the best experience, practice and science, and may be unhesitatingly relied upon as absolutely true. The

volume is profusely, handsomely and practically illustrated, and in paper, presswork and binding all that could be desired. Over five hundred pages, five by seven inches; cloth. Postpaid, \$2.

IRRIGATION METHODS. A timely up-to-date book on the practical application of the new methods for destroying insects with hydrocyanic acid gas and carbon bisulphid, the most powerful insecticides ever discovered; by Willis G. Johnson, formerly professor of entomology and invertebrate zoology at the Maryland Agricultural College and State Entomologist, author of many special reports on economic topics, and associate editor *American Agriculturist* weeklies. An indispensable book for farmers, fruit growers, nurserymen, gardeners, florists, millers, grain dealers, transportation companies, college and experiment workers, etc. Nothing of the kind has ever been printed before. It embodies years of careful research and practical application by the author, as well as the tests and experiences of others from all parts of the world. The fruit, nursery, floral and grain industries are confronted on every side with hordes of insect pests which threaten their very foundation. This important work tells just what to use and how to apply it to save serious losses from insects. The author has presented his subject in a popular style, free from technicalities. Specific and minute directions

are given for making and applying hydrocyanic acid gas from every standpoint. The physiological effects upon animal and plant life are fully illustrated and discussed. Six chapters are devoted to orchard fumigation, including the construction and management of all kinds of apparatus devised and successfully used. In three chapters on nursery fumigation, the construction, management and methods of preparing young trees for treatment are given. The destruction of insects in greenhouses, mills, elevators, granaries, dwellings, ships, cars and other enclosures can be easily and cheaply accomplished by following the directions given. Other chapters contain the opinions and methods of experts from every part of the world where the gas is used. The regulations of foreign governments regarding the importation of American plants, trees and fruits are described. A most useful part is devoted to the use of carbon bisulphid for the destruction of animal life below the surface of the ground, stored grain or other materials, and in places where hydrocyanic acid gas cannot be used. Illustrated; five by seven inches; three hundred and ninety-one pages. Cloth, \$1.50.

CATALOGUES.

BARR'S GOLD MEDAL DAFFODILS.—Bart & Son, 12 King Street, Covent Garden, London.

SPRAYING PAYS

IN a year like the present when the conditions are commonly known as rather adverse, favorable opportunities arise of testing many of the principles or orchard practice. For example, in the early part of the season we have had a great deal of rain, and spraying operations were frequently interrupted and in many cases entirely prevented. As the season advanced the weather was very moist, and consequently conditions for the development of fungous diseases very favorable. It is not to be wondered at, therefore, that many reports are coming in from different parts of the province saying that apple scab, mildew, grape rot, etc., are very prevalent. However, under these most unfavorable conditions we find cases where spraying was thoroughly carried on and the rot almost entirely eliminated from the orchard. Frequent reports have come in

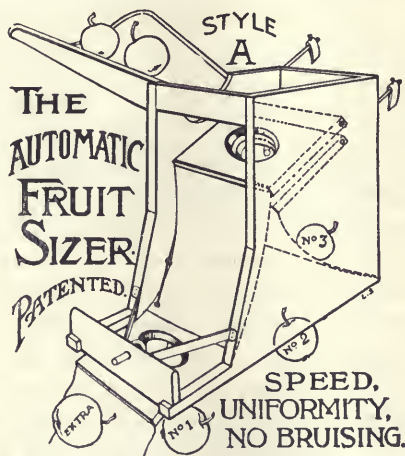
where the entire crops of plums have been lost through the plum rot. Last week, in travelling through the Niagara district, we visited the orchard of Mr. E. D. Smith, Winona, and found that by thorough spraying his trees were hanging with a splendid crop of fruit. On a considerable portion of his orchard the fruit had been thinned so that it did not touch, and where this was done the trees were entirely free from rot. However, even on unthinned trees which had been thoroughly sprayed very few rotten plums could be found, although the fruit was so thick that the plums were touching one another and crowded closely together. A couple of trees which were left unsprayed lost their entire crop through the rot. An instance of this kind affords a striking illustration of the value of spraying.

BOOKS FOR FRUIT GROWERS.

FRUIT, FLOWERS, ETC.

Apple Culture, Field Notes on. Bailey. . .	\$0.75
Bulbs and Tuberous Rooted Plants. C. L. Allen. . .	1.50
Bush Fruits Prof A. Card. . .	1.50
Chrysanthemum Culture. Morton. Cloth. .	1.00
Chrysanthemums, How to Grow. . .	.25
Cider Makers' Handbook. Trowbridge. . .	1.00
Cranberries, Cape Cod. James Webb. Paper. . .	.40
Cranberry Culture. White. . .	1.00
Crops, Spraying. Clarence M. Weed. . .	.25
Dahlia, The. Lawrence K. Peacock. . .	.30
Floriculture, Practical. Peter Henderson. .	1.50
Florida Fruits, and How to Raise Them. Harcourt. . .	1.25
Flower Garden, Beautiful. Matthews. . .	.40
Fruit Culturist, American. Thomas. . .	2.50
Fruit Grower, Practical. Maynard. . .	.50
Fruit Harvesting, Marketing, etc. F. A. Waugh. . .	1.00
Fruit, The. P. Barry. . .	1.50
Fumigation Methods. Willis G. Johnson. .	1.50
Fungi and Fungicides. Clarence M. Weed. Cloth \$1.00, paper. . .	.50
Garden Making. Prof. L. H. Bailey. . .	1.00
Grape Culturist. A. S. Fuller. . .	1.50
Grape Grower's Guide. Charlton. . .	.75
Grape Growing and Wine Making, American. Prof. George Husmann. . .	1.50
Greenhouse Construction. Prof. L. R. Taft. .	1.50

Greenhouse Management. Prof. L. R. Taft. .	1.50
Horticulture, Annals of. Prof. L. H. Bailey. .	1.00
Horticulturist's Rule Book. Prof. L. H. Bailey. . .	.75
House Plants and How to Succeed with Them. Lizzie Page Hillhouse. . .	1.00
Insects Injurious to Fruits. Saunders. . .	2.00
Irrigation Farming. L. M. Wilcox. . .	2.00
New Horticulture, The. H. A. Stringfellow. .	1.00
Nursery Book. Prof. L. H. Bailey. Cloth. .	1.00
Nut Culturist, The. Andrew S. Fuller. . .	1.50
Peach Culture. Fulton. Revised edition. .	1.00
Pear Culture for Profit. Quinn. New and revised edition. . .	1.00
Plants, Handbook of. Peter Henderson. New enlarged edition. . .	3.00
Plants, Propagation of. A. S. Fuller. . .	1.50
Plants, Your. James Sheehan. . .	.40
Plums and Plum Culture. F. A. Waugh. . .	1.50
Principles of Fruit Growing. Prof. L. H. Bailey. . .	1.25
Pruning Book, The. Prof. L. H. Bailey. . .	1.50
Quince Culture. W. W. Meech. . .	1.00
Rose, The. Its Cultivation, Varieties, etc. H. B. Ellwanger. . .	1.25
Rose, Parsons on the. . .	1.00
Small Fruit Culturist. A. S. Fuller. . .	1.00
Spraying of Plants, The. E. G. Lodeman. .	1.00
Strawberry, The A B C of the. T. B. Terry A. I. Root. . .	.50
Strawberry Culturist. A. S. Fuller. Illustrated. . .	.25
Vineyard at Lakeview. My. . .	.50



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FIG. 2395. THE ST. JOHN PEACH.

THE CANADIAN HORTICULTURIST

OCTOBER, 1902

VOLUME XXV



NUMBER 10

ST. JOHN PEACH

THE earliest really good peach for either home use or market. Its season is the end of August, just before the Early Crawford; and its fair size, yellow flesh, attractive skin, and good quality, make it one of the most satisfactory peaches for all purposes.

Origin.—America.

Tree.—Vigorous, and productive.

Fruit.—Round, large, $2\frac{1}{2}$ x $2\frac{1}{2}$ inches; skin yellow, with dark red cheek; suture traceable on one side, sometimes by a red line; apex a tiny point in a rather deep depression; freestone; flesh, yellow, tinted red at stone; juicy, sweet, rich and agreeable.

Season.—August 20th to September 1st.

Quality.—Dessert and cooking, very good.

Market.—1st class, the best of its season.

Notes and Comments

SUCCESSFUL FRUIT GROWING.

THE lesson of successful fruit growing must be learned slowly; and many a purchaser of a fruit farm is sadly disappointed when he learns that the varieties of fruit upon it are a more important consideration than the number of trees. This season, for example, the Astracan apple has been a complete glut in our Canadian market, and being too tender for foreign shipment without great risk, it has sold at such low prices as to leave the grower a loss of money after labor, packages, freight, commission, etc.,

has been paid for; a similar statement may be made of the whole list of early clingstone peaches, such as Alexander, Hale, Rivers and Triumph. Fancy 10 and 15 cents a basket out of which to pay all expenses! What is left we ask for the grower? Nobody wants such rubbish. But as soon as we begin harvesting a fine yellow freestone, such as Yellow St. John we find a demand at 75 to 80 cents a basket, and we feel encouraged at once.

We mention this to show the great importance to the intending fruit grower when

buying a fruit farm, or to the farmer who wishes to plant an orchard, of knowing what varieties are really desirable; for it is evident that there are very many kinds which are only an encumbrance, and should be rooted out and burned.

It is with this end in view, to know desirable varieties and encourage the planting of them, that our fruit stations have been established; and if our readers will be advised by the reports of their work, as published by the Department of Agriculture, it will save many costly mistakes, and they will not be misled by the gaudy colored plates and glib tongue of the peripatetic tree agent.

GREAT MARKETS OPENING.

THERE is no doubt whatever that the world is big enough to eat up all our fruit products, and rich enough to pay us good fair prices for them. Not only is Great Britain a grand distributing market for our products, but we have enquiries more or less direct from Germany, and South Africa for our fancy apples. It is reported that good apples are just now worth 12c. each in Capetown, and that a line of steamers, furnished with cold storage, will soon begin to run between Canada and South Africa. Why then should not we take advantage of such fine opportunities? Even Japan, China and Australia are opening up for us, and, with so many millions of mouths to satisfy, surely the time will never come when our good apples will go begging for buyers.

FANCY PRICES FOR FRUIT.

WHAT is a fruit tree worth any way? This question puzzles our great corporations when they come to buy land planted with an orchard, for there are as many different values set as there are men to make them. Some say an apple orchard is only an encumbrance, for it does not pay, and

must need be pulled out to make way for something more valuable. Others want fancy prices for each tree. "How many baskets of Flemish Beauty pears do you think I took off that tree this year?" said Mr. W. M. Orr, of Fruitland. Well, it was a stout stocky tree, not so very large, and we guessed about ten. "No," he said, "Twenty, and last year it gave me more than that." What then is that pear tree worth, would you take \$40 for it? "Perhaps I would, but I should hesitate." Well that would count up pretty fast per acre; for you would have perhaps 100 trees on it, and that would make the trees alone worth \$4000, aside from the land value!

"How many barrels of apples would you estimate in this apple orchard which I have recently purchased," said Mr. Orr. We walked through it; the ground was a stiff clay, the trees, though thirty years planted, were low headed, and very stocky, and every tree loaded with clean beautiful apples. We guessed an average of about two barrels per tree, or about 200 barrels from the 100 trees, as a very modest estimate. Now apples this year are valued at \$1.00 per barrel as they hang upon the tree, and the apple crop on this farm we estimated as being worth this year at least \$100 per acre. What then is such an orchard itself worth? Surely \$500 per acre is a very moderate estimate. But why should a man like Mr. Orr, who already has a large fruit farm, wish to add another ninety acres? "It was too good an offer to pass by," said Mr. Orr, "ninety acres, with fine buildings, for less than \$4000! How could I resist the temptation, if only for speculation?"

THE VALUE OF OLD TREES.

THE above purchase was as signally low as another, along the same electric road, was high. Twelve acres about seven miles distant was sold in August last for \$10,000! The value was not in the

orchard alone, though a fine peach orchard just of bearing age; nor in the location altogether, although that is one of the pleasantest, but largely in the grand old trees which were left from the primeval forest to shade the borders of the lawn and hide unsightly views. "It would take a life time," said the buyer, "to put such grand old trees about a home, and I would not buy a place bare of trees at any price." Why is it that the grand old oaks, maples and elms, monarchs of the forest, are so thoughtlessly destroyed by the farmers of Ontario? Is there no way of convincing them that in time these will add thousands of dollars to the selling value of their farms?

THE APPLE SITUATION TO-DAY

IS the heading of several columns in "The Sun," in which the editor says, "Taking the situation as a whole it looks as if good apples, not necessarily grade No. 1, should go between \$1.00 and \$1.50 in the orchard. They may go more, they are not likely to go less, and the probabilities are on the side of the growers." It is really a comfort to us growers to find one journal taking up our interests. The Official Crop Reporter, issued by the United States Department of Agriculture, in speaking of the conditions of the apple crop in the United States, says that of the States having four million trees and upwards in apples eleven report an improvement in condition during August, and all but six of the apple-growing States report conditions ranging from 7 to 32 points above their ten-year averages. The State Weather Bureau reports that the outlook in New York is for considerably less than an average yield of apples. Buyers are snapping up desirable apples throughout the western part of York State. A Kenyon man has sold 2,000 barrels of bulk apples at \$2 a barrel; Albert Wood, Carlton, his orchard of 700 trees for \$7,000; the Pratt estate, Carlton, gets \$2.50 per

barrel for firsts and seconds; an East Albion man, \$2 for everything barrelable; I. Cooper of Carlton, \$2,500 for a 9-acre orchard; several other orchards sold at from \$2,000 to \$3,000. The Illinois Orchard Co., of Kankakee, Ill., has sold the apples in two orchards for \$11,500. These orchards total 125 acres, and are situated in Clay and Richland counties. The apples were of the Ben Davis and Jonathan varieties. On the other hand we read in the New York Fruit Journal such statements as the following:—"The talk that buyers are offering \$2.50 per barrel is rot. The apple men, with few exceptions are not anxious to part with their money. We were talking with one grower to-day who expects 500 barrels, and he remarked that he 'hoped to get \$1.00 for the fruit clear of the barrel.' This is not an exceptional case. The rank and file of our growers are beginning to wonder if they will be able to realize the above figure. Of course, the growers are talking short crop, hoping thereby to get the price started high.

We believe that the situation is one that calls for careful investigation before prices are made."

APPLES A BIG FAILURE IN ENGLAND.

ALL our foreign reports agree that the apple crop in Great Britain is an unusual failure, especially of colored or fancy fruit, so that the prices in England will be high. Already (September 2nd) sales are reported in Liverpool for fall apples at about \$6.00 a barrel, and in Glasgow at \$2.50 per bushel box! We have word of a syndicate in England, which is being formed for the purchase in Canada of high grade apples, packed in boxes, under high class brands. This is pointing in the right direction. We are tired of shipping fruit to commission men, who so often sacrifice it, and seem to care little for the interests of the consignor, so long as they get their percentage.

If we could once establish such a reputation for our brands that we could bring the world's buyers to Ontario for their high class stock, we would be masters of the situation. No apples are finer than Ontario apples, either in color or flavor, and the whole world wants such fruit. Why then should we not supply that want?

ASTRACHANS EXPORTED SUCCESSFULLY.

IT seemed a considerable risk, our sending forward to Glasgow a car load of such tender apples as the Red Astrachan; the carrier cases cost us 22c. each delivered, and the freight and commission on a bushel of apples amounts to about 50c., so that in case of failure we might be in debt nearly \$500, besides losing the fruit. It was therefore with some pleasure that we received the cable from the consignee saying that the fruit had arrived in perfect condition, and had netted us £90 at Grimsby! Pretty good for an apple that is wasting under the trees in Ontario! And still, even at home, there are ways of succeeding with them. Here, for example, is the way a writer in Green's Fruit Grower managed with them:

"So many early apples in sight, with help scarce and poor at that; how to handle them successfully was a problem. We used "fifth" baskets, discarding all inferior fruit. My wife and I attended to the grading and putting up, while the hired man did the gathering. The baskets were new and clean, cost 30 to 35 cents per dozen. The apples were handled one by one, and polished with a cotton cloth until they shone. When carefully graded and attractively put up fruit will seldom go begging for a market. I went only to private houses, and the best at that, and could readily find sale at good prices for fancy eating or cooking apples. I made the business honorable by fair dealing, and at each visit found ready customers. Knowing that I had the best to be found, I was not afraid or ashamed to step

up like a man and ring the door bell of the finest residences. Why should I be ashamed? Husbandry was the labor that God first instituted and blessed, and its devotees are and ought to be the kings and queens of the realm. Well, it was slow work to put up fruit in that way, but I could sell at 15 to 25 cents per basket, and it paid. Others were offering apples by the bushel at the same prices that I was getting for "fifths" baskets, but it was the way of putting them up, I think, that gave me the advantage.

"The best grade of culls was either dried or made into cider. The dried apples would keep over and wait for a shorter supply, and the cider would make vinegar to be sold later on at good prices. The apples not fit for drying or cider were carefully gathered up and fed out, none being allowed to decay on the ground. Why? Well, I have been through orchards and seen the apples lying on the ground and decaying by the bushel. The worms were crawling out by hundreds and seeking a home somewhere else, and, rest assured, they are always heard from the following year."

THE APPLE SHORTAGE IN EUROPE.

MESSRS. WOODALL & CO., of Liverpool, always send us reliable reports of foreign markets, and we have pleasure in quoting from their circular of August 1st, which encourages us to hope for good prices for our No. 1 stock, but very properly discourages the shipping of inferior stock.

"The crop in Great Britain is about the same as the season of 1901, which was a small one. The comparisons are shown in the following figures, but this year there are twenty-six more reports than in previous one.

	Over Average.	Average.	Under Average.
This year.....	12	98	184
Last year.....	15	90	163
Year 1900.....	143	138	16
Year 1899.....	20	137	194

"The total imports from the United States and Canada in the United Kingdom, during the past season, 1901-1902, are 781,000 barrels, as against 1,300,000 in the preceding one, and as shewn below are the smallest for the last five years. The receipts from New York were insignificant, Canada being the chief source of supply. It is to be feared that results cannot have been satisfactory to shippers, as, consequent on the scarcity, a high range of prices were paid not warranted in the quality of the fruit, which often landed here in doubtful and poor condition, which is so often the experience in seasons of small crops, and has again demonstrated that the atmospheric conditions which caused the failure, generally prejudicially affects the condition and keeping quality of the fruit, to which the late shipments this year have been no exception. California has again, through the high range of prices, been able to place greatly increased shipments on to this market, the receipts being 117,843 as against 70,303 boxes in 1901-1902, which for purposes of statistics are estimated as at three to a barrel. The quality was not very satisfactory, but buyers had confidence in them, as the condition was generally reliable and also being the nearest approach to the Hudson New-town Pippin, which were almost an entire failure.

"The prospect of a small English crop gives promise of an early demand for foreign imports, and it is to be hoped that the reports of good crops in the United States and Canada will be realized, as there is every prospect of a large demand in this country. This, of course, it must be repeated, is for good sound quality and condition, as no amount of scarcity will produce high prices for inferior stock, and it is no use paying the heavy freights and expenses with this expectation.

"Reports from the chief Continental growing districts are generally unfavorable."

APPLE CROP NOT EXTRAORDINARY IN ONTARIO.

FROM all parts of the Province comes the same report, viz., that the apples are badly spotted and blemished, so that the yield of No. 1 apples will be comparatively small. Our Ribston Pippins, for example, looked well on the trees, but when we gathered them probably not three per cent. were No. 1, so many were blemished and misshapen; our Fall Pippins, which looked fine on the trees, when picked showed numerous minute scabs which made them nearly all third class; Kings and Gravensteins were much better, and grade largely No. 1, but Spys look very disappointing, and more than one-half will be third class. Besides this, many trees are quite barren, and the orchards will not yield so much above the average as has been supposed. Mr. Race, of Mitchell, evidently agrees with us, he says: "Just made a tour of some of the best apple orchards in this district, and find the prospects much less promising than they were three weeks ago. The average yield of fruit fit for export will be far below that of 1900. There are very few Colverts fit for shipment, though this variety promised well in the early summer. Snow apples are gnarled, spotted and useless; so are St. Lawrence and other fall varieties. Ben Davis and Russett, though numerous, are very small and irregular in shape. Duchess is very fine and will grade well in the picking; so also will the Blenheim and Ribston Pippins. Baldwins promise fairly well, but are as yet much under size. Spys are light and only a small proportion of them will grade up No. 1. One buyer was through the section a few days ago and expressed himself as much disappointed. He said the quantity of saleable fruit would be considerably below an average crop, and did not think that grade one would take many of the Ben Davis, Spys or Baldwins."

Mr. A. E. Sherrington, of Walkerton, says: "The prospects in our section are

very poor for No. 1 stuff. The yield of apples here will not be more than three quarters of the yield of two years ago. There had been a good deal of dropping since the previous report, and it is still on. Ninety per cent. of the apples are more or less spotted, and not more than ten per cent. will grade No. 1. In fact, our intention is to grade all No. 2. No dealers have been here so far as I know, but we have been offered \$1.50, the fruit to be barrelled by the producers, and graded as No. 1."

NO. 1 APPLES SCARCE IN ONTARIO.

THE wet summer has caused the growth of so much fungus on the fruit in the northern portions of the Province, and indeed in many orchards of the southern parts, that a large part of the apples will pack under grade No. 2, or, perhaps No. 3. This will cause a glut in all markets of low grade stuff, and a great scarcity of No. 1. No doubt the evaporating factories will have a rich harvest of this grade, and if they pay 40 cents a hundred pounds, we counsel our fruit growers to sell the lowest grades to them, and not to crowd it upon the market. R. J. Graham, writing our excellent contemporary the Sun on this point, says :

"If strictly No. 1 apples were to be picked only, there would be a fair market for our good fruit, but unfortunately we hear of buyers undertaking to pack seconds, and we, therefore, look to see this quality of fruit ruin the market for better goods. We think it will be a disastrous year for speculators who pay any fancy prices for fruit, and we advise everyone to go cautiously, and if possible pack only good goods. We do not think more than 10 per cent. of the crop in Canada would pass No. 1, according to Government standard. The apples in Essex and Kent are much better than in any portion of Ontario, and have mostly been bought at prices ranging from 50c. to \$1 per barrel on the trees. We hear of some sales as high

as \$1.50 for No. 1 fruit east of Toronto and some orchards, bought by the lump. One dollar per barrel for No. 1 fruit is being freely offered in this section (Belleville), and 40c. per 100 pounds for canning purposes.

"This is certainly an off year in the Georgian Bay apple district. The trees are not loaded, and the proportion of small, scabby fruit is abnormally large. 'Not over half a crop,' said Director Mitchell, of Clarksburg Experiment Station, in answer to my question as to crop prospects. 'The western part of the district,' he continued, 'in which most of our apples have been grown, makes the poorest showing this year. The fruit is thin on the trees, and what there is appears to be very scabby.' And Mr. Mitchell did not overstate the case. Some good orchards will not give \$1 where \$10 has been given."

HOW TO GET BIG PRICES FOR APPLES.

THE way to get big prices is to show a good article. Astracans are selling at 15 to 20 cents a twelve quart basket in August, and Mr. Delos Woolverton gathered the finest windfalls, polished them with a cloth, consigned them to the same buyers in six quart baskets and got 33 cents each for these half baskets!

Prof. Whitten read a paper before the Rochester Convention of Apple Shippers on "European methods of securing enormous prices for first-class fruit." Among other things he said :

"The possibilities of a European market for a larger quantity of American apples should justly claim more attention. Such a market cannot be developed by any one class of men alone. The responsibility rests with the American apple grower as well as with the American apple buyer and shipper. A better understanding of European conditions and strenuous effort and co-operation on the part of all concerned ought to secure in Europe a lucrative sale of increased quantities of apples. In order to arrive at a better understanding of European conditions it is perhaps worth while to mention the fact that the Europeans are well aware that they can never hope to compete with America in the wholesale production of cheap fruit. This fact does not worry them, however, half so much as

might be supposed, in fact, they are not trying very hard to compete with us in that way. They are simply laughing at the 'inferior quality' of American apples, and are turning their attention to the production of apples of the highest quality, so they can have the cream of the market, and they get a price for their product such as we have never dreamed of in America. A half dozen apples of first quality attractively put up in a small basket sell for as much in London or Berlin as a whole barrelful of fine apples in America.

"It should be borne in mind that in America we have a great middle class of comparatively well to do people, including millions of the more intelligent laborers, who consume the greater part of our apple product. It is a source of gratification that we have such a middle class and that we can supply enough apples to bring them easily within their reach. In Europe they have practically no such middle class; generally speaking, the people are rich, aristocratic and luxurious or very poor. The former class do not want to eat cheap apples; the latter cannot afford to. There is far greater demand for moderate priced apples in America than there is in Europe.

"It seems to me the future of our European apple market depends upon our supplying only a first-class article. Let us keep all our moderate priced stuff at home. The European grower is turning his attention to varieties of the highest quality, regardless of productivity. It is more profitable here to grow a smaller quantity of apples of high price than a larger quantity of low price."

FRAUDS OF SPECULATORS.

IT is not at all fair that the blame for bad packing of Ontario fruit should be laid at the door of the fruit grower, when the fraud is the work of the speculator who buys his orchard in a lump for so much and packs to make as much as possible. Nearly all the fraudulently packed barrels of apples, which have led to the passing of the Fruit Marks Act, were done by shippers, and not by the growers, who unfortunately for themselves have hesitated to undertake the packing of their own fruit. Here for example is a note in the Mail and Empire, of Toronto, along this line, headed:

FANCY FRUIT TRADE.

"The Dominion Fruit Inspector at Winnipeg has sent to the Department a box of apples taken from the middle of a consignment shipped to Winnipeg by a firm in Galt, Ont. The apples were described by the shipper as "fancy" Canadian apples. The specimens sent to the department are very

poor quality, indeed. Twenty of them weigh only 28 ounces. Twenty hen's eggs of good average size would weigh 40 ounces. It is considered too bad that Ontario fruit is being shipped to the excellent markets of Manitoba and the North-west Territories in this dishonest manner. It is killing the trade out, and playing directly into the hands of the fruit growers and shippers from California. The inspector has been instructed to prosecute the shipper in this instance and every similar instance which comes under his notice."

Now this kind of thing would never occur if we could educate the grower to pack his own fruit, and encourage a few of these men at every shipping point to combine in shipping car lots to proper consignees, for sale.

HOW TO PACK.

FOR a fancy trade in No. 1 apples, the box is the best package. We take out this grade, and the No. 2 goes in the barrel, and is marked accordingly. X, our lowest grade, is No. 1 apples, $2\frac{1}{4}$ inches in diameter, XX is $2\frac{3}{4}$ inches, XXX is $2\frac{3}{4}$, fruit larger than that we call EXTRA, as indicated last month.

We place a thin layer of excelsior first against the bottom, then row in the apples, four wide, four deep and eight long, with padding of excelsior between every layer, in boxes $10\frac{1}{2} \times 11\frac{1}{2} \times 22$ inches. These boxes are most convenient for consumers, who seldom want a whole barrel because it is too clumsy for the kitchen or the pantry, while a box of apples is just in place, especially if it be a high grade article. Another note, in the above mentioned Journal, fits in just here about; and we quote it because it is exactly in line with our views.

HIGH GRADE PRODUCTS.

"A profitable lesson can be learned from a visit to one of the large fruit markets of the city, or even by a casual inspection of



FIG. 2396. GARDEN OF THE REV. J. T. PITCHER, SMITH'S FALLS, ONT.

the different grades offered for sale at the retail shops. There will be seen peaches the size of an ordinary apple, without spot or blemish, while alongside of them may be a basket of immature bruised specimens that apparently have been handled with the same care that is accorded to anthracite coal. The prices of the one is perhaps a dollar and a quarter, the others are labeled three for a dollar. The amount received by the growers of these two grades would be still more convincing evidence of the necessity for growing only the best or at least of marketing only the best. The top prices cannot always be secured, but the fruit of a high standard of quality never waits a buyer."

CLERGYMEN AS GARDENERS.

WE have often been impressed that clergymen should be the most active supporters of our Horticultural So-

cieties. These organizations afford an open meeting ground for all religious parties, and the study of flowers and fruits is a branch of nature study that leads ones thoughts upward toward the creator of this world of beauty.

As recreation for the body, nothing is better for the minister than an hour or two a day spent in his garden, while at the same time he gets many a suggestion for his sermons, gathered from his garden favorites.

The Rev. A. B. Cohoe, of Grimsby, planted a quarter acre garden last April with rows of all kinds of vegetables to keep a succession, and, while the care of it was a pleasure and a source of increased health, the proceeds for the table were more valuable, we fancy, than any other quarter acre in the neighborhood.

The Rev. Canon Hole, Dean of Rochester,

England, is famous for his horticultural books, and all the result of his delight in gardening. And here is another Canadian minister, the Rev. J. Pullman Pilcher, of Smith's Falls, Ont., whose success is evident, who kindly sends us a photograph of his garden with the accompanying letter.

SIR,—By this mail I forward a photograph of my flower garden. I am the pastor of a very large congregation, yet for my pleasure and health I find time to cultivate a large garden. The work is all done by myself before breakfast. One hour a day will keep a garden in good order, will supply fresh crisp vegetables for the table, flowers for the church, neighbors and friends and appetite for the gardener.

OUR EXHIBIT AT THE INDUSTRIAL.

THE display of fruit from our fruit stations was exceedingly good this year. Each of our experimenters arranged his fruit in alphabetical order, for convenience of singling out any variety under consideration; and the labels, being written out boldly with a shading pen by our assistant, were a most important feature. The number of varieties of grapes shown by Mr. M. Pettit was limited, owing to the lateness of the season, but the apple collection from Mr. Dempsey, the pears from Mr. Huggard, and the plums from Mr. Mitchell, were unusually interesting.

THE CHABOT.

THIS plum (pronounced "shæbbot") is coming to the front rank among the Japan varieties. It fruited this year for the first time at Maplehurst, and we first noted that the tree was fairly productive, and the fruit large and most attractive in color. Next we tested its flavor and were surprised at its excellence; it was tender, juicy and of a delicious flavor, and were almost convinced that it was the best Japan plum we had yet tasted. Surely this belongs to the first rank of Japans.

It was a little disappointing, however, to see this plum as grown in the Beaver Valley in the Georgian Bay District, and shown by

Mr. John Mitchell, our experimenter there, for in his exhibit it was much smaller and apparently quite inferior. Conditions of moisture, richness and cultivation of soil must have much to do with these differences, and should be further investigated. "In my opinion," said Mr. Orr, of Fruitland, "the best three Japan plants are Red June, Burbank and Satsuma."

"I do not know the Chabot, and of course it may displace one of these. Satsuma is blood red in flesh, and very desirable for canning purposes."

"In my opinion," said Mr. John Mitchell, our Clarksburg experimenter in plums, "the three best Japans are Red June, Chabot and Burbank. I also think very highly of the Satsuma, and would place it fourth on my list, for it is productive, quite hardy, and a splendid preserving plum."

FINE FRENCH PEARS FOR ONTARIO.

WE have noticed in our experimental plot several varieties of pears worthy of the attention of our fruit growers. One is Triomphe de Vienne, which is of about the same season as Bartlett, but larger in size, and another is the Hoosic, which is a trifle later, but is not only larger than the Bartlett but has a fine red cheek and is of excellent quality. Dr. Charles Saunders, of Ottawa, was particularly taken with a beautiful dwarf tree of this variety at Maplehurst, which was bending down with its tremendous load, and took a photograph of it for the exposition at St. Louis. Surely it would be a splendid export variety.

"I have an excellent French pear here at the Industrial," said Mr. W. M. Robson, of Lindsay, "which is worthy of notice. I procured the cions from the late J. K. Gordon, of Whitby, who was so well known for the large collection of foreign pears and plums in his garden. It is Beurre de Mortillet." It was truly a magnificent pear, averaging 2¾ inches in

diameter, well colored, and having a peculiarity in the habit of the stem growing out at right angles to the axis of the fruit. "Another fine French variety, that succeeds well in Canada," said Mr. Robson, "is the Duchess Precocce. The tree is an early bearer, and the fruit very fine." We have often noticed this pear as being valuable, especially since Mr. E. C. Beman has grown it with such success at Newcastle. We would suppose that it would be also a good shipper for export.

DISCARDED VARIETIES.

ONE of the most important features of our fruit station work is the warning of our fruit growers against planting inferior varieties. Almost every nurseryman's catalogue is loaded up with a whole list of inferior kinds which he carries simply because they are still asked for; and he will be greatly obliged to us if we can educate the grower to discard them. In our future exhibits we intend making a special table of such varieties, so that growers can see at a glance why we have discarded them. Another feature will be the showing up of varieties which are too much boomed. There are always unscrupulous dealers who want to trade upon varieties before their value is known, and we want to test all such fruits, and where they are not superior to varieties in cultivation we want to warn the growers against them.

COLD STORAGE OF FRUIT.

THE advantages of this means of retarding the ripening of fruit are only beginning to be appreciated. By it we can reach distant markets in all parts of the world, hitherto quite inaccessible, and what is still more important we can reach our own markets at almost all seasons, with fruits which otherwise must be sold immediately after harvesting. Professors Hutt and Reynolds, of the O. A. C., Guelph, have been making some interesting experiments along

this line, and have reached the following conclusions:

1. Apples and pears keep best when wrapped singly in paper, and packed in a shallow box not larger than a bushel. They ship best when, in addition, they are packed in layers and excelsior between.

2. Apples keep better at a temperature of 31° than at a higher temperature. Our experiments do not show what is the best temperature for pears.

3. Cold storage cannot make bad fruit good; neither can it keep bad fruit from becoming worse. Only good specimens will keep for any length of time in cold storage, will pay for storage.

4. For long storage, it pays to select the best fruit and to pack it in the best manner known. The extra labor and the cost of material are more than repaid in the greater quantity and better quality of fruit left at the end of the storage period.

5. With apples and pears at least, and, it seems likely, for most kinds of fruit, the fruit should be picked and stored in advance of dead ripeness. The maturing process goes on more slowly in cold storage than on the tree or bush.

6. With the two kinds of fruit tried, apples and pears, the medium sizes of fruit keep longer than the largest, all being perfect specimens and picked at the same time. It would, therefore, be an advantage, especially with pears and peaches, to pick the larger specimens first, and leave the smaller to mature later.

7. Fruit, on being removed from cold storage, should be allowed to warm gradually, and moisture should not be allowed to deposit upon it. But if the wetting cannot be prevented, then the fruit should be spread out and dried as quickly as possible.

8. With all kinds of fruit, there is a time limit beyond which it is unprofitable to hold the fruit in cold storage, or anywhere else. That limit, for sound fruit, is dead ripeness.

Duchess pears can be kept profitably until late in December; Fameuse, or Snow apples, until March or April. The time limit has to be determined for each kind of fruit.

9. In addition to proper conditions, in the storage room, the most important points in the storage of fruit are the *selection* of sound fruit, *grading* into uniform sizes, one variety only in a case; and careful *packing*. Therefore, the results of these experiments can be made use of by the family, in preserving fresh fruit for their own use; by the fruit-grower, in securing better prices for good fruit later in the season, in the local markets; and by the shipper, in enabling him to take advantage of the higher prices offered in foreign markets.

THE VARYING QUALITY OF NIAGARA GRAPES AND OTHER FRUITS.

AMONG other fruits there is very little appreciable difference in natural quality. To some persons an apple is simply an apple, a peach is only a peach,—the variety makes but little difference if the general quality be above a fair average. With grapes it is very different. Every one is familiar with the old Concord and the newer Niagara; with the Catawba and Delaware; the imported white grapes, the California Tokays, the wild Fox, and the fine “hothouse” varieties are all recognized by sight and taste, if not all by name. Each, too, has its coterie of admirers, and justly so.

There is one fact relating to the Niagara that it is desired to bring out particularly, which is that there are two distinct qualities according to the stage of ripening. Those bunches of fruit that have remained long on the vines and become well developed have a peculiar distinguishing flavor and a strong, agreeable odor; fruit picked early, though

ripe, are not well developed, and the quality is really often poor, while the true Niagara flavor is lost. As a rule, the well ripened grapes have a yellowish cast. The new Campbell's Early is said to be the better for remaining long on the vines.

Some apples are noticeably different in quality. The R. I. Greening is very often poor and almost astringent; Baldwin is the same, but perhaps less frequently. Fine specimens of either are of high quality. To a certain extent, the trouble with the apples is similar to that of the Niagara grape—they are not well developed. But the non-development may not be the result of their being harvested too soon; there are other factors in the case. Overbearing or a weakening from the attacks of insects will cause an earlier ripening or an imperfect development. When will every fruit-grower learn that the best fruit is most profitable, and that it is only to be had by thorough care and cultivation?

The Seckel pear is another instance, though there may be additional trouble of another nature—namely, that the true qualities have been lost somewhere in course of propagation. But the chief complaint is against the miserably grown fruit that gets into the market—ill-shapen, undeveloped stuff that by no means satisfies the lover of this delicious variety.

The Keiffer Pear is exceedingly variable, and here again depends upon the care and judgment exercised in picking and ripening. This pear may be a delicious, juicy, soft-grained fruit, or it may be coarse, dry and almost worthless.

It would be disastrous to allow a Clapp's Favorite Pear to ripen on the tree, as it will rot inside unawares. Picked early and ripened in the dark, it ripens uniformly and is delicious.—*Meehans' Monthly*.

ORCHARDING IN THE ANNAPOLIS VALLEY N. S.

OBSERVATIONS BY THE CHEMIST OF THE EXPERIMENTAL FARMS ON SOILS, CROPS, ETC.

AT the request of the Boards of Trade of Annapolis, Kentville and Windsor, and by the authority of the Minister of Agriculture, Mr. Frank T. Shutt, Chemist of the Experimental Farms, recently made a tour through the famous apple growing section of Nova Scotia, partly to give addresses and partly to gain further information regarding the nature of the soils in that district and the methods of orchard culture in vogue.

To a horticulturist representative, Mr. Shutt said: "My trip has been most profitable and pleasant. While the attendances at some of the places where I spoke was not large, owing to pressure of work at this time of the year upon the farm, we always had most interesting and instructive meetings. The discussions and questions asked showed a keen appreciation of the value of scientific knowledge as applied to practical orcharding. I found a large number of men who are carrying on their work on rational lines—not only reading men, but men who are putting to the practical test the methods suggested by the results of experiments carried on here and at other research institutions. We have already a number of careful enthusiastic co-workers there, and I feel convinced that every year will see an addition to that number. Several have promised me, or rather have volunteered to carry out, and take observations upon, certain experiments or systems of soil fertilization and culture, and such must result in increased knowledge as to the most profitable ways to manage orchards. Certainly, the

orchardists of Nova Scotia are amongst the most intelligent and progressive that I have met in Canada."

What are the chief products? "Hay, apples, potatoes and oats. The hay is grown on the fertile, dyked lands. Such are seldom fertilized (though some farmers are now using a certain quantity of bone meal on them), and only occasionally re-seeded, when oats are used as the nurse crop. It is not at all unusual to take two tons and over of hay per acre for a number of years without breaking the sod or applying any manure.

"The orchards are planted for the most part on what we should call the upland soils—upon the gentle, rising slopes of the mountains, and there they flourish, for the trees get good natural drainage. The orchards are mainly apples, but plums, pears, cherries, peaches and small fruits are also in some parts extensively grown. The soil and climatic influences seem particularly well adapted to fruit growing of all kinds. No doubt the future of that country—I refer to the valleys and adjacent lands of that part of Nova Scotia—lies in fruit growing, and it will be successful. All the progressive, up-to-date men are now practising clean culture, and the turning under of clover or some other green crop to enrich the soil, and the results are excellent. A considerable and ever-increasing amount of commercial fertilizers (principally bone meal and muriate of potash), is being used."

What do you think of the soil generally? "Leaving out of consideration the dyked

lands, which, as a rule, are heavy loams containing a fairly large amount of clay, the soils are, for the most part, light and gravelly. As we ascend the slopes of the hills or mountains, the soils become poorer in quality, gravels or sandy loams containing a good deal of stone. Of course, as in other parts of Canada, there are great differences in quality to be observed, but one may say there is a predominating type on the slopes and higher lands of a sandy or gravelly loam. Such are warm and responsive to good treatment. Supplied with humus and plant foods, they are well adapted to orcharding. Perhaps the system of maintaining or increasing fertility of the soil by growing and turning under clover, will be of more value to the Maritime orchardist than to the Ontario farmer."

Why do you think so? "Because the fruit growers as a class keep very few cattle; they produce very little manure on their farms, hence their lands become impoverished in humus, which, you must remember, is a most valuable soil constituent, but one not furnished by commercial fertilizers. Clover adds a large amount of humus, as well as nitrogen to the soil. By its decomposition in the soil it also sets free considerable

amounts of phosphoric acid, potash and lime in forms available to succeeding crops. I feel sure there is no way in which the Nova Scotian can so cheaply, and we may say permanently, improve his upland soils as by growing clover. They have a quick, responsive soil which only needs feeding and cultivation (to conserve moisture) to obtain excellent results."

I hear that their apple crop is poor this year? "That is true. Not only is it small in quantity, but there is a large percentage of inferior quality fruit. Nevertheless, there are many orchards, as I can personally testify, bearing a good average crop. On the whole I should say it would be below, rather than above, 50 per cent. Some varieties are poorer than others. Thus, the Golden Russet is practically a failure this year; but the Blenheims are yielding fairly—very fairly—well. Those who have fed their soils and sprayed their trees will have a good crop to market."

Is there any special reason for this failure? "I think it principally due to cold, wet winds prevailing when the trees were in bloom. The frost did not do so much harm as the rain and wind."

REFRIGERATOR CARS

THE Canada Atlantic Railway Company has recently constructed a number of Hanrahan refrigerator cars for the carriage of tender fruits. The cars have been running between Grimsby and Ottawa, at a cost of about one-third that charged for expressage. The Ottawa Fruit and Produce Exchange, for whom the C. A. R. cars were built, report as follows, under date Sept. 20:

"Hanrahan car 40191, loaded at Grimsby on Saturday 13th, arrived here on Monday night and was sold on Tuesday morning in perfect condition, and realized prices equal to Express goods sold at the same time.

"Hanrahan car 1517, loaded part on Monday, balance on Tuesday, arrived here on Thursday, the 18th, in perfect order, and sold Thursday evening at 6.30, realizing prices equal to Express. No sign of decay or any of the goods being affected with age or with time of standing whatever.

"Hanrahan car 1522, loaded on Wednesday the 17th, arrived here Friday the 19th, at 8.30 p. m., and was sold on the morning of the 20th, when every package in the car was in perfect order and realized excellent prices."

Car No. 40191 is the car that was remodelled by the Grand Trunk Railway at the instance of the Ontario Government.

IMPROVING AN OLD ORCHARD

SCRAPING AND PRUNING—FEEDING AND
PASTURING—POOR VARIETIES SHOULD
BE TOP GRAFTED—HOW TO GRAFT—GOOD
GRAFTING WAX—SPLENDID RESULTS

BY

W. H. COARD, LL. D.

DEPARTMENT OF AGRICULTURE, OTTAWA.

MANY an old orchard which is now an eyesore to everybody can, at little cost, beyond slight labor, be converted into an up-to-date tidy, prolific, and profitable branch of the farm. There are many orchards in Canada which bear more worms than fruit, because the generality of farmers cannot be brought to learn that fruit raising pays even if it be grown merely for home consumption. It will only occupy three years to evolve a plentiful harvest as well as a symmetrical well kept orchard out of lichen and moss-covered trunks, if the advice given in this article be followed with fair faithfulness.

The first thing to be done is to scrape off the rough, loose bark from the trunks and branches, and to prune the trees. While it is true that this rough bark may appear to do but little harm, it affords comfortable free board and lodgings for noxious insects which thoroughly appreciate and avail themselves of this hospitable shelter.

Pruning may be as simple as A B C. At first only dead branches and crowding suckers need be removed; unless the trees be old and decrepit with dying branches and waning strength, and in that case the pruning should be vigorous. As a grape vine can be renewed so can an apple tree, and in extreme cases a tree may be cut to the ground and another one built upon a short shoot which will spring up. Cut out old branches, leave young suckers to take their

place, then a new top will quickly form, and good fruit will follow. Always take care to thin out useless branches, because sunshine and air are inseparable from the steady, healthy growth of orchards as of individuals.

An apple tree must be fed if it is to produce fruit, and no diet is more suitable or inexpensive than a leguminous cover crop. Trees require moisture and food; therefore grass and weeds must be removed. To succeed, the farmer must plough his orchard and till the ground, tillage being continued frequently during early summer. By mid-summer wood growth generally ceases and tillage should stop. A cover crop sown then will not only protect the soil from washing but will add humus to it, while a clover crop will gather all the nitrogen necessary for the next year's growth.

A good alternative to ploughing the orchard is to pasture it with hogs and sheep, preferably the former, and always to keep more animals there than the grass will support, because this will insure supplementing the grass diet by grain, which naturally will bring fertility to the orchard and insure that the grass will not grow tall. Where animals are not grazing in an orchard the grass should be mown early and left on the ground to add humus to the soil; but this is not nearly so beneficial as grazing the land.

Insects and fungi have to be considered with, and it will be necessary to spray with

Bordeaux mixture and Paris green at least twice after the blossoms have fallen. The former will clean the limbs of hanging lichens or moss, and the latter will settle most of the noxious insects, though it cannot reach the apple maggot, which calls for special treatment, because it is the larva of a small fly which punctures the skin of the apple and lays its eggs underneath. No matter how thorough the spraying may be it cannot reach this pest; but if the windfalls can be destroyed as soon as they drop, and all refuse from places where winter fruit has been stored be burned, the next season's numbers will be appreciably reduced. It is in this respect that pasturing the orchard has a marked advantage, because if well stocked with hogs or sheep the apples are eaten before the insect is likely to escape.

There are some instances in which the orchard may be in such a condition from long neglect that the land cannot be properly tilled, and the trees cannot be adequately fed. One of the best methods of feeding the tree is to keep it well pruned, because then the food which would otherwise be diffused in numbers of worthless limbs is concentrated in a small number. It is only the well pruned trees that are capable of successful treatment with sprays. Apple and pear trees should be pruned to keep the heads open. Plum trees should be pruned to keep out the black-knot, and some Japanese varieties require frequent cutting back. All pruning can best be done very early in spring, before the sap starts.

There are so many apple trees of little value growing in Canada, which could be successfully top-grafted with better varieties, that it would well repay anyone possessing an orchard to go carefully over his trees and top-graft those which do not produce paying crops. The chief points to take into consideration in top-grafting may be summarised as follows:—

Old trees, if healthy, may be grafted with success.

The top should not be all cut away the first year, but should be removed gradually, the time required to change the top successfully being from three to five years.

Early spring, before growth begins, is the best time to graft. The branches to be grafted should not be more than from two to three inches in diameter where the grafts are to be inserted.

After the branch is carefully sawn in two, the stub is split with a mallet, held open with a wedge, and the scions inserted; two being used, one on each side, if the branch is more than an inch in diameter.

The scion is made from a twig of the previous year's growth, about four or five inches long, and having three or four buds. It is prepared by making a wedge of the lower end, beginning near the base of a bud. The scion is inserted in the stock as far as the upper edge of the wedge.

In inserting the scion great care should be taken that the inner bark of both scion and stock should come in contact with each other. This is very important, as the healing begins from this point, and if the scion be inserted carelessly there is almost certain to be a failure.

After the scion has been set, the cut surface is covered over with grafting wax to exclude the air, and strips of cotton may be wrapped over this.

A good grafting wax for out door use is made by melting together rosin and beeswax in the proportion of five parts rosin and two parts beeswax; to this is added one and one-half to two parts linseed oil.

In top-grafting a tree always have in view the production of a symmetrical top after the old one has been removed.

With this cultivation codling moth will disappear, and in three seasons an old ugly and comparatively worthless orchard can be converted into a pretty uniform one, with abundant crops of marketable and profitable varieties. An orchard is "never too old to mend," or beyond renewal.

THE POTATO BLIGHT

BY

PROF. W. LOCHHEAD

ONTARIO AGRICULTURAL COLLEGE, GUELPH, ONT.

THE blight which attacked the leaves and stalks of potatoes during the latter half of August was felt over the larger part of the Province. It is rather early to give an estimate of the damage done, for in many cases the tubers are still healthy and moderately large, while in other cases many have begun to rot.

For some years the blight has not been severe. This year, however, was an abnormal one as far as the weather is concerned, and the moisture conditions were favorable for the development of the fungus which caused the blight. During July and August there was much rain, with intervening spells of warm, not to say hot, weather. As the fungus grows most rapidly in a temperature of about 70° F. when the air is humid, it will be readily seen that it was possible for the disease to make a very rapid headway this season.

There is scarcely a year when there is not a little blight present, but with its remarkable powers of reproduction the fungus may spread with amazing rapidity when the conditions are favorable.

The fungus blight is an internal parasite, hence spraying with Bordeaux is of little avail in preventing injury after the plant becomes infected. Spraying is valuable, however, in preventing the spread of the disease to unaffected plants and should not be neglected. Observations show that fully 99 per cent. of our potato-growers take no precaution whatever to ward off fungus diseases from their crops. Paris green is used everywhere to kill the beetle, but Bordeaux mixture is seldom or never applied to pre-

vent blight. A spray composed of a mixture of Paris green and Bordeaux would ward off both the beetle and the blight. The fruit grower has learned by experience the value of this mixture in combating the codling moth and the scab. Some years the scab is not serious, but the fruit-grower always takes the precaution to spray his trees thoroughly, for he cannot forecast the season with any degree of accuracy. "Fore-sprayed is fore-armed" is his motto, and it ought also to be the motto of the potato-grower.

For the best method of preparing and applying the combination, Bordeaux and Paris green, consult Spray Calendar, Bulletin 122, published by the Department of Agriculture, Toronto. For potatoes, however, use 8 oz. Paris green instead of 4 oz. to the barrel. Spraying should be done all through July and August.

The potato blight first shows itself as small, brownish blotches on the leaves. These rapidly enlarge so that in a few days the entire field becomes blackened. During the early stages a delicate, white, felt-like covering may be seen at the margin of the brown areas on the under side of the leaf. This is composed of an immense number of branching threads bearing spores. These spores are readily dislodged from the threads and are carried away by the wind to the surfaces of other leaves where they germinate at once and send germ tubes into the leaf. Once within the leaf they grow rapidly by feeding on the juices, and soon set up the diseased condition known as blight. If, however, the leaves are covered with the

Bordeaux the spores which alight on them are killed and infection prevented.

The way the tubers become affected is not so clear, but it is probable that the spores, on falling to the ground, are often washed by rains through the soil to the tubers, into which they force an entrance and set up conditions which give rise to the rot. In some plantations this year only the uppermost tubers are rotten. This would seem to favor the idea that the rot was produced by spores washed down by rains.

As the winter spore of this fungus is not known it is supposed by many authorities that the fungus winters over as thread in diseased tubers, and that after planting the tubers the following season the threads grow into the new shoots and into the new leaves. If this is the case, it becomes important to plant "seed" potatoes from the localities where the blight was absent the previous season.

Some authorities are of the opinion that the fungus winters over as a thick-walled spore in the tissues of the dead leaves and stalks. This supposition is a quite probable one, for many closely related blights winter over in this way, and their winter spores are not difficult to find. But the potato blight winter spore has, as yet, not been found, hence the various suppositions as to the method the fungus adopts to survive the winter. If the blight has a winter spore, then all the dead stalks and rotten tubers should be *burned*. They should never be thrown on the manure heap, for with the application of this manure to potato ground the following year many spores will be distributed, and ready to infect the new plants. At this juncture it would be advisable to remove the dead stalks from the ground before digging up the tubers, for it may prevent further infection of the tuber and subsequent rotting.

NEW FRUITS

THE BARTLETT PLUM

ONE of the most delicious plums that is now on the market is Burbank's Bartlett. A small dish of them will soon fill a room with a delicate aroma, which strongly suggests bananas. In fact, the children insisted that bananas were on the sideboard until they were told to go and take a look and a smell. Now, when they smell bananas, they want Bartlett plums. This plum is about the size of a Tragedy prune, yellowish green when at the right stage to pick and in a day or two will turn a dark, shiny red. The flesh is soft and juicy, deep yellow, and has a decided Bartlett pear flavor. The skin is very thin and tender, has no sour or astringent taste common to most plums, and cracks if heavy dews fall on it when allowed to ripen fully

on the trees. It is decidedly a plum for the home orchard, and should be in every one. The tree is not particularly prolific, although it has all it can carry this year. The two previous years the crop may have been light.

Climax is considered a choice plum from some accounts, but on the sandy soil of the Pomona valley it has proved a failure. It is a fine looking plum, but does not bear with us. We have failed to secure a good specimen, for what few set have always fallen off before they thoroughly ripened. Shiro is a most wonderful bearer, is a fine looking plum, but lacks flavor with us. It makes a good shipper, for it is firm and a beautiful lemon yellow. In shape almost perfectly round.—*Cal. Cultivator*.

APPLE GROWERS' AND EXPORTERS' ASSOCIATION

NOTES OF MEETING HELD IN ROCHESTER, AUGUST 6TH AND 7TH, 1902

CANADA was represented at this meeting in the persons of Peterson Bros., Toronto; W. McWilliams, Toronto; H. Dempsey, Rednersville; James Depew, Southend; J. M. Shuttleworth, Brantford, and W. N. Hutt, of the Ontario Department of Agriculture and others.

This association differs somewhat from the Ontario Fruit Growers' Association in that its efforts are devoted almost entirely to the commercial aspect of apple dealing. The membership fee is \$5.00 per annum, and being somewhat exclusive the membership is limited and made up only of those who have gained the confidence of the association. It aims at estimating the extent and value of the apple crop throughout North America, and the collaborating of all information which would assist in establishing a fair price to offer for apples during the season.

Monthly reports are issued by the association giving the number of barrels of apples in storage in all parts of the country, and the clearance from these houses during the month.

The practical, orchard side of the apple question was treated by Prof. Craig, of Cornell University, who gave a very interesting and instructive paper on the management of orchards in relation to trimming and pruning, fertilizing, the use of cover crops, the conservation of moisture, thinning and marketing of fruit. This paper was much appreciated by all at the convention

and gave a great deal of information in a very interesting way.

Prof. W. A. Taylor, Pomologist, in charge of Field Investigation in the United States Department of Agriculture, Washington, gave an illustrated address on "The Commercial Areas of the United States." A map marked out with the areas under orchard throughout the different States showed a very wide extent and showed also that Missouri particularly was a large grower of apples.

Prof. A. S. Beach, of the Agricultural Experiment Station at Geneva, gave a valuable report on "The Keeping Quality of Apples," and brought out many points that were rather a surprise to the audience. One of these was that the Northern Spy was not a valuable keeper in New York State. This was rather a striking contrast to the splendid Spys raised in the Province of Ontario which keep well until the following summer. Prof. Beach remarked that apples from orchards in sod were higher colored and better keepers than apples raised under cultivated conditions, though of course the apples are not so large nor the crop so heavy.

W. N. Hutt, of the Department of Agriculture, Toronto, gave an address on "Pruning of the Orchard" illustrating his remarks by means of sections of limbs of trees showing the proper formation of the tree, and also injury that might be done to the tree through careless or injudicious pruning.



FIFTH CONVENTION OF THE CANADIAN HORTICULTURAL ASSOCIATION

HELD AT HAMILTON, SEP-
TEMBER 3RD AND 4TH, 1902

THE C. H. A. Convention just passed will do more to set Canadian floriculture on a permanent and proper basis than all of its predecessors ; this is a statement that we think will pass unchallenged.

The untiring work of the Hamilton Gardeners and Florist's Club and the officers of the C. H. A. to bring about a Convention and Trade Exhibit that would adequately represent the Horticultural standing of the Dominion cannot be allowed to pass without suitable mention, also the hearty co-operation of the Hamilton Horticultural Society. We would say that it is a vigorous young body, only 5 years of age, being organized in St. George's Hall, Toronto, in 1898 ; Mr. William Gammage, the well known London florist, being its first president. Since that time the association has convened in the cities of Ottawa, Montreal, London and lastly at Hamilton. The object

of the association is to organize and carry forward the interests of the florists, nurserymen, seedsmen and gardeners of the whole Dominion, and anyone interested in horticultural pursuits, whether amateur or professional, is eligible to membership. That its aims are strongly of a national character was evidenced by the discussion which followed the recommendation of Prof. Hutt of the Ontario Agricultural College that the name of the organization be changed to the "Ontario Florists Association," and so receive a provincial grant in the same way as the other provincial organizations.

We quote the following paragraph from the Florists' Exchange, a weekly New York publication, which will show the impression that the late Convention of the C. H. A. created abroad :—

"The Convention of the Canadian Horticultural Association just closed at Hamilton has proved to the world that a new power

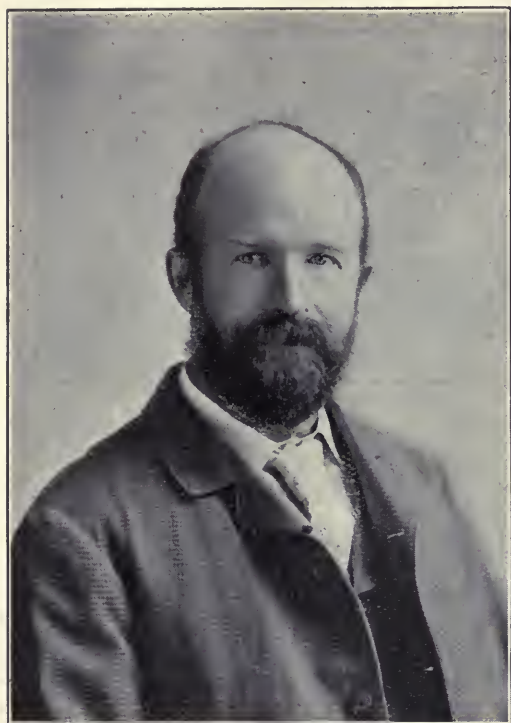


FIG. 2397. THOMAS MANTON, EGLINTON.
President Canadian Horticultural Association.

has risen in the north—a power for good and the promulgation of floricultural weal. In debate it has shown that it was intended to be and now is a Canadian National Society, with the intention of uniting in one common accord and working effectiveness all portions of the great Dominion interested in floriculture. That it may accomplish its aim, achieve success in the highest, and work hand in hand with our own Society of American Florists for the promotion of the welfare of our ancient and honorable calling is the sincere prayer of its well-wisher, The Florists Exchange.”

THE CONVENTION

The Convention was held in the City Hall. On Wednesday, September 3rd, at 2.30 p. m., the first session was opened by Mr. C. M. Webster introducing Alderman J. G. Y. Burkholder, who in the absence of Mayor

Hendrie welcomed the delegates to the city. He closed his interesting address by remarking, “You have the freedom of the city and can take away anything you wish excepting our mountain.” The address of welcome was responded to by Thos. Manton of Eglinton.

President Joseph Bennet, of Montreal, then addressed the meeting in a few well chosen words. He reviewed the progress the Association had made during the past year, and also spoke eloquently of the widening of the aims and objects of the C. H. A. He pointed out that there are over 1200 persons engaged in the interests of floriculture in the more populous districts of Canada. The urgent need of a Canadian Trade paper was also dealt with; the large growers had yearly more and more stock to dispose of, and they felt the need of an advertising medium to reach other members of the craft throughout Canada.

REPORTS OF TREASURER AND SECRETARY

The report of Treasurer Hermann Simmers, of Toronto, was then read. It showed the finances of the Association to be in a flourishing condition. The report was adopted without discussion.

The report of the Secretary, A. H. Ewing, Woodstock, was then read. He spoke most hopefully of the work of the Association and its future. The death of Mr. C. G. Knott, of St. John's, N. B., had removed one of the most active workers among the members of the Association. He regretted that lack of time had necessitated his giving the preparation of the Convention program into other hands.

A request was read from the Superintendent of the Flower Show that judges be appointed from among the florists.

The following were selected by the President: Thos. Manton, Eglinton; E. Mepsted, Ottawa; A. C. Wilshire and Jas. McKenna, Montreal.



FIG. 2398. GORE PARK, HAMILTON.

After an interesting discussion on the President's paper, the following were appointed to bring in a report on the advisability of establishing a trade paper: Wm. Gammage, London; J. H. Dunlop, Toronto; Joseph Bennett, Montreal; Jno. A. Campbell, Simcoe, and C. M. Webster, Hamilton.

Some very practical advice on the matter was given by Mr. F. R. Pierson, Tarrytown, N. Y., and Mr. A. T. De La Mare, of the Florists' Exchange, New York.

The first session adjourned at 4.30 p. m., and the delegates were taken to the Floral Fete and Trade Exhibit in the Thistle Curling Rink. All agreed that it was the best Trade Exhibit ever held in Canada, and the amateur exhibits were pronounced very high class.

EVENING SESSION

The hall was completely filled at this session, and the close attention of the delegates was favorably commented on by the American visitors.

A paper on "Winter Flowering Plants," prepared by C. A. Smith, Montreal, was read by Fred. Bennett, of the same city.

A most interesting and up-to-date paper, "The Latest Facts About Roses," by Edward Dale, of Brampton, brought out a most useful discussion on grafting.

Mr. W. N. Hutt, of the Department of Agriculture, Toronto, explained that he was present to find out for himself what the C. H. A. really was, not having any definite information about the organization. He deprecated the fact that so little had appeared in Canadian publications about the

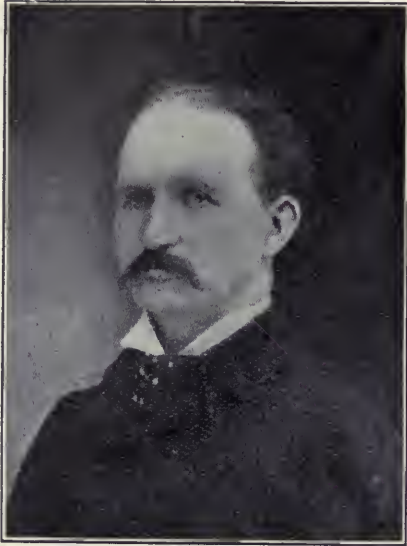


FIG. 2399. A. H. EWING, WOODSTOCK.
Secretary Canadian Horticultural Association.

organization, and advised that one sure way to forward their interests was to use the columns of those papers who would gladly print any information that was given them. He suggested that the Association approach the Canadian Horticulturist about the publication of a trade paper.

A TRIP TO GRIMSBY

On Thursday at 8-15 a. m. the delegates left on a special car on the Hamilton, Grimsby and Beamsville Electric road. A stop was made at Winona at E. D. Smith's shipping house; everyone was interested in the process of handling and packing fruit for long distance shipping and also the cold storage plant in which fruit is cooled for shipping to Great Britain. The trip was then continued as far as Grimsby Park. When the car returned another stop was made at E. D. Smith's and he personally conducted the party through his extensive nurseries and made no objections to the raids which the delegates made on the various fruit plantations, allowance being made for the delegates from Montreal and other

northern points, to whom the fruit belt appeared like the Garden of Eden. The car pulled into Hamilton about 12 o'clock at noon and the whole party proceeded up James street to the foot of the mountain, up which they were taken on the Incline Railway. Quite a contingent of newly arrived delegates were found on top and about one hundred did justice to the dinner provided by the Hamilton Gardeners and Florists' Club. Mr. T. Lawson, Secretary of the Club acted as toast master and the following toasts were proposed and responded to:

Our King and Country, responded to by Prof. Hutt, and C. M. Webster

The Canadian Horticultural Association, responded to by Joseph Bennett, Jas. McKenna and J. H. Dunlop.

The Society of American Florists, responded to by F. R. Pierson, Tarrytown, and Mr. Clucas, New York.

The Gardeners and Florists' Club was responded to by Messrs. Manton, Mepsted and Gammage.

The members were then grouped on the steps of the Mountain View pavilion and photographed.

THURSDAY, 3.30 P. M.

The meeting was called to order by President Bennett at 2.30 p. m. There was an overflow meeting which should be taken into account in the selection of a meeting hall for next year.

Prof. Hutt spoke on the relation of the professional florist to the local Horticultural Societies. His remarks about changing the name of the Association called forth a good deal of argument. But the pith of his remarks addressed to professional florists were listened to with rapt attention.

A paper on the Hardy Perennial Border was read by Andrew Alexander, President of the Hamilton Horticultural Society. It was a masterly tribute to the new popular hardy perennials.

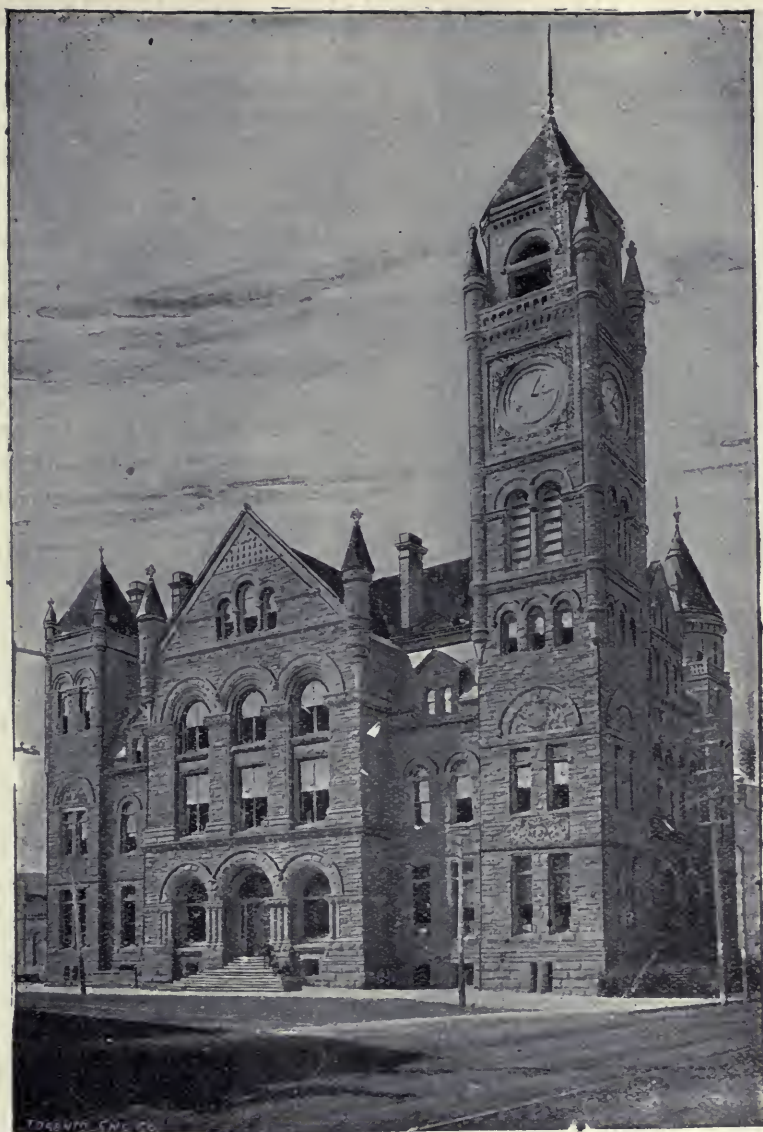


FIG. 2400. CITY HALL, HAMILTON, WHERE THE C. H. A. CONVENTION WAS HELD.

Roderick Cameron, of the Queen Victoria Park at Niagara, gave an address on the Advantages of Cold Storage of Plants to Florists and Gardeners.

The last paper of the afternoon was that prepared by Geo. Hollis, Bracondale, on Hybridizing. It was read by Mr. J. H. Dunlop, Toronto. It was of absorbing in-

terest and showed that the gentleman, to whom we owe the production of Chrysanthemums Timothy Eaton and Lady Roberts, and several other plants of merit, understands his business and carries out his work on scientific principles.

The next order of business being the selection of next place of meeting, Mr. Thos



FIG. 2401. HERMANN SIMMERS, TORONTO.
Treasurer Canadian Horticultural Association.

Manton said that the Association had a standing invitation from Toronto, but he would not urge it as Torontonians had the reputation of grasping for everything in sight.

Mr. W. Gammage and Robert Brooks, Fergus, extended an invitation to meet at Guelph next year.

John H. Dunlop spoke for Toronto, saying that owing to Mr. Manton's bashfulness and his retiring disposition he would have to undertake to tender the invitation to Toronto.

It was moved by E. Mepsted, seconded by J. McKenna that Toronto be the next place of meeting. The motion was carried.

THURSDAY—EVENING SESSION

Wm. Hunt, of the O. A. C., Guelph, read a paper on Summer Flowers for Florists. He called attention to some very useful plants which are not at present much used. He also reviewed some of the standard kinds.

A paper on Heating Greenhouses, prepared by Mr. Edward Gurney, of the Gurney Foundry Co., of Toronto, was read by one of their enterprising young men, Mr. E. J.

Brewer. The paper was most carefully prepared and was read by the young man in a masterly manner, which called forth rounds of applause.

OFFICERS FOR 1903

The following officers were elected: President, Thos. Manton, Eglinton; 1st Vice-President, Geo. A. Robinson, Montreal; 2nd Vice-President, E. J. Mepsted, Ottawa; Treasurer, Hermann Simmers, Toronto; Secretary, Arthur H. Ewing, Woodstock.

The following were elected on the Executive Committee to take the place of retiring members: Mr. Wm. Algie, Brampton; Mr. Jno. A. Campbell, Simcoe; Mr. A. C. Wilshire, Montreal; and C. M. Webster, Hamilton, to take the place of C. G. Knott, deceased.

The other members of the Executive are W. J. Lawrence, Mimico; Walter Muston, North Toronto; O. G. Johnston, Kingston; T. Manton, Toronto; and Wm. Gammage, London.

The Trade Paper Committee reported that the time at their disposal was insufficient to propose anything definite and the matter was left in the hands of the Executive Committee to deal with at their next meeting.

FINAL RESOLUTIONS

Votes of thanks being tendered to the President, Joseph Bennett, to the Mayor and Council of the City of Hamilton for the use of the City Hall for holding the meetings in, the Hamilton Gardeners' and Florists' Club, the Hamilton Horticultural Society and the Hamilton daily papers, for their full reports of the convention.

The meeting adjourned at 9.45 p. m. to meet in Toronto, 1903, at the call of the President.

THE TRADE EXHIBIT

Great credit is due to the Gardeners' and Florists' Club for the remarkable energy they displayed in getting together the large

and representative Trade Exhibit. They grasped the idea that a Trade Exhibit was a necessary adjunct to a good Convention, and they succeeded in materializing an Exhibit such as has not been attempted at any former Convention.

Exhibits were secured not only from florists, but from all manufacturers of and dealers in florists' supplies that could be persuaded to exhibit. The enthusiasm which this Trade Exhibit called forth has made each and all of the officers resolve to carry this feature forward with renewed vigor at the next Convention.

The following firms appeared in the Trade Exhibit:

The H. Dale Estate, Brampton, cut roses.

R. Jennings, Brampton, carnations and early chrysanthemums.

The King Construction Co., Toronto, two sections of their iron construction greenhouse with two or three different styles of ventilating apparatus attached. Models of an automatic stoker and steam boiler were also exhibited by this enterprising firm.

John A. Campbell, Simcoe, gladiolus bloom.

F. A. Carpenter, Hamilton, Pilkington's English greenhouse glass, rubber hose and valves and pipe fittings.

Cavers Bros., Galt, the Auto-Spray, a spray pump for greenhouse use.

R. G. Olmstead, Hamilton, ornamental iron vases, iron garden seats, etc.

David McLeod, Hamilton, florists' plants.

D. J. Sinclair, Toronto, general florists' supplies, wire designs, metal designs, fancy baskets, wheat sheaves, etc. A very attractive exhibit.

Hall & Robinson, Outremont, Que., ferns and other florists' plants.

Grimsby Manfg. Co., Grimsby, fruit and vegetable baskets.

Clucas & Boddington, New York. bulbs and palm seeds of first-class quality.



FIG. 2402. E. MIFSTED, OTTAWA.
2nd Vice-President Canadian Horticultural Association.

American Florist Co., Chicago, literature.
Robt. Evans Seed Co., Hamilton, bulbs, mushroom spawn, sprayers.

Adam Dunn, Galt, Begonia Triomphe de Lorraine and other varieties.

Messrs. Van T'Hof & Blokker, Haerlem, Holland, Dutch Bulbs in many varieties.

The Foster Pottery Co., Hamilton, flower pots, hanging baskets and fern pans.

The Florists' Exchange, New York, floral-cultural books.

John A. Bruce & Co., Hamilton, bulbs and florists' supplies.

L. H. Foster, Dorchester, Mass., specimens of the new Nephrolepsis, Anna Foster.

T. R. Pierson Co., Tarrytown, specimen of Nephrolepsis Piersoni. Received special attention.

Walter Holt, Hamilton, carnations and other florists' stock.

S. S. Bain, Montreal, new Coleus and rare plants.

Webster Bros., Hamilton, perennial flowers and florists' plants; an extensive exhibit.

J. Gammage & Sons, London, Begonia Gloire de Lorraine in splendid shape, also general florists' stock.

G. N. Sones, Hamilton, plants for retail trade.

E. G. Brown, Hamilton, plants for retail trade.

F. G. Foster & Son, Hamilton, plants for retail trade.

Joseph Bennett, Montreal, beautiful *Adiantums* in pans, also florists' plants.

Certificates of Merit were awarded to the T. R. Pierson Co., the King Construction Co. and the Foster Pottery Co.

NOTES

It would seem that in this flower show the matter of closer relations between the amateur and the professional Horticultural Societies has been solved. For the members of the trade and the Horticultural Society worked hard in hand with the utmost harmony and it was freely said that the show would be made an annual affair if at all possible.

Several genial members of the Horticultural Society added materially to the sociability of the Convention.

The majority of the delegates came from the following centres, Montreal, Toronto, Ottawa, Guelph, Brampton, Niagara Falls, Brantford, Simcoe, Woodstock, and Chatham.

It is the avowed intention of the association to meet in the future in Winnipeg, Halifax, Vancouver, and other distant points. The true national spirit is present.

Such a Horticultural Association was considered and looked forward to by some of Canada's leading florists for many years before the organization. All of this little body are now active members of the C. H. A. with the exception of F. G. Foster, Hamilton, whose poor health has not permitted him to take an active part; also Harry Dale Brampton, and Jas. F. Webster, Hamilton, who did not live to see the successful launching of the organization.

Those desiring information about membership, fees, etc., should write to Arthur E. Ewing, Secretary of the Association, Woodstock, Ont.

SOME SPECIAL FEATURES OF THE FLORAL EXHIBITION

A very beautiful and artistic feature of the exhibit was the competition in table decoration. This showed tables arranged for dinner with flowers arranged in as pleasing and artistic forms as possible. The exhibit attracted considerable attention, particularly from the ladies visiting the exhibition.

Another novel feature was the exhibit in plant photography by James Gadsby, of Hamilton. This contained many wonderful specimens of photographic art. There were canpanulas, lilies and groups of flowers, fruits and lawns, all of which looked very natural. This work would be very valuable to any magazine wishing to illustrate flowers and fruits from half tones.

Probably the best educational exhibit in the whole show was that of the Hamilton school children. In the early spring aster seeds were given to the children to grow in their gardens and there were 186 entries in the flower show. These were grouped as to schools and labelled as to individual exhibitors. The results shown from those few packages of seeds was simply marvelous and would have done credit to the skill of any professional florist. Work of this kind is certainly very valuable as an educator to children and should be encouraged and fostered by our city officials.

W. N. HUTT.

Toronto.

SUMMER FLOWERS FOR FLORISTS

PAPER READ BY

MR. WM. HUNT

ONTARIO AGRICULTURAL COLLEGE, GUELPH.

THE commendable and increasing demand on the part of the flower-loving public during the last few years, for a greater display of taste in the more natural arrangement of flowers, necessitating their more lavish use in the make up of designs and floral decorative work in general, makes it imperative on the part of florists, to consider well as to how they can best supply the wants of their customers in this respect.

The grouping of palms and foliage plants, as well as the very general use of large quantities of fern fronds, asparagus, etc., for room decorative purposes, often requires the use of large quantities of flowering plants and cut flowers, to brighten up the density of these masses of green. Bright colored foliage plants, such as crotons, pandanus veitchii, etc., are admirable for this work, but they are not always available, and cannot be used in many positions, even where they are to be had.

Roses and carnations can of course usually be obtained, but these cannot always be had at prices that will warrant their use except for the finer points of florists' work. Out of door flowers can usually be had in summer, but with the failure or partial failure of the sweet pea and aster crop, even these during the hottest weather in summer are often very limited both in quantity and quality, and many kinds of out-door flowers are too common almost to allow of their being used satisfactorily.

It seems to me that the empty benches so commonly seen in many florists' establishments, could be more profitably used than

they are, to supply this demand for a better class of flowers than is often obtainable out of doors during the summer months.

Japan lilies, more especially *lilium speciosa alba*, *lilium rubrum* and *lilium auratum*, as well as other varieties of this class can be, and are grown in large quantities, but these sometimes, like our at one time reliable and beautiful Easter lilies, have of recent years become more fickle and uncertain in their character, and are at the best too costly, except for the very best class of work.

Although it is impossible to attempt even to fill the place of the gorgeous beauty of roses and carnations, as grown at the present day by our florists, or the more chaste and delicate beauty of the lily, there are some plants that I have found most useful as accessories and auxillaries to these indispensable florists' flowers mentioned. I have reference more particularly to begonias.

For many years past I have grown *Begonia Weltoniensis* and *Begonia MacBethii* and *Begonia Weltoniensis alba* in as large quantities as desired, and although these varieties have been known to most of us for over a quarter of a century, or at least two of them,—they cannot in my opinion be surpassed by any of our newly introduced varieties, taking ease of culture, handling and keeping qualities, as well as profuseness in flowering habit into consideration. By wintering over a few old plants and starting them in April or May, and propagating as soon as the cuttings are ready, a fine batch of plants can be had early in August, that will furnish a good supply of bloom or pot



FIG. 2403. *BEGONIA WELTONIENSIS*.
(Pink Flowering.)

plants, at a time when flowers and flowering pot plants are scarce. By drying the plants off gradually when they are through flowering, and putting them on a front shelf under the greenhouse benches where the drip does not bother them, or on a back shelf in the greenhouse, or even in a warm potting shed, these begonias will keep splendidly, and occupy no valuable winter space. I have found two year old plants profitable, as they can be grown on into 6 inch or 7 inch pots, but after the second season I have not found the keeping qualities of the plants as reliable as younger stock. The *Begonia weltoniensis* is a splendid bedder, and succeeds well in almost any position in light soil. Fairly light soil should be used for pot plants of this begonia. Other newer varieties, such as *Begonia Vernon*, *Bruantii*, *Erfordii*, *Ingramii* and other summer flowering types of

Begonia semperflorens, will not compare favorably in my opinion with the two varieties first mentioned, excepting perhaps that these latter can be easier raised from seed than the *Weltoniensis* begonias. The seed, however, should be sown early in the spring, about February, to secure early flowering plants the same season.

The new hybrid type of *Gloire de Lorraine Begonia*, although beautiful and floriferous at almost all seasons, can scarcely be considered as a summer begonia. Although several new types and varieties of *Begonia semperflorens* have recently been introduced, at present there is still room for an ideal summer flowering begonia for florists; a want that may possibly be filled, as begonias are very susceptible to cross fertilization, a fact that many of our principal florists are taking advantage of, as is shown by the introduction of so many types and varieties of this beautiful and useful class of plants. But the ideal florists' begonia has yet to be raised, and like all other classes of beautiful plants to be found in the floral world, we shall never know when the highest possible point has been reached, so great and mysterious are the workings of nature, when assisted by art, as well as by the assistance of bees and other insects in hybridizing and crossing different varieties of flowers.

I have been pleased to learn during the last few days that the three varieties of begonias mentioned, viz.: *Begonia weltoniensis*, *Begonia weltoniensis alba*, and *Begonia McBethii* are again coming into popular favor, and, in my opinion, no florist should be without them on his greenhouse benches in summer, as their many good qualities for decorative purposes in general, still entitle them to a place in the front ranks of this numerous and useful class of plants. Many florists, who have dropped them from their lists, are again taking them up, ample evidence that they are still of

service, and that there is nothing yet to surpass them for general usefulness amongst summer flowering begonias.

And now a word on outdoor flowering plants in summer. 1st—Annuals, the prettiest, most varied and unfortunately, I must add, in many cases the most fickle and uncertain class of plants grown.

It is gratifying to know, however, that there has been, during the last few years, more especially on the part of seedsmen and seed growers, a greater effort made, not only to introduce new species, but to improve generally the various strains and types of these useful adjuncts to a florists' establishment.

Time will not permit me to but barely touch on the subject of annuals, as it is unnecessary for me to even mention the staple varieties of many of them, such as Asters, Sweet Peas, Mignonette, Nasturtiums, Stocks, Phlox Drummondii, Cosmos, as well as Anthirrinums, Petunias and Verbenas—the last three being now generally acknowledged for all practical purposes as annuals—as all of these are well known to all classes of flower lovers, as evidenced by the beautiful display now on exhibition in connection with this convention.

But there are a comparatively few new varieties and types that may, perhaps, not be as generally known and cultivated as



FIG. 2405. MALOPE GRANDIFLORA ROSEA.

those I have mentioned. Take first of all the annual chrysanthemum. The beautiful colors and markings, as well as ease of culture, good keeping qualities, etc., well entitle these to the notice of all florists. For table and room decorative work, more especially, these annual chrysanthemums will be found to be invaluable. By sowing the seed early in the season, their decided and pretty flowers can be had early in August and September in abundance.

Another species of plants that will furnish material for florists' use, are the Malopes and Lavaterus. These improved types of the Mallow class of plants will be found of great service for decorative purposes and for loose cut flowers. *Malope grandiflora alba* and *Malope grandiflora rosea* being the two varieties most useful to florists. *Lavatera rosea splendens*, *Lavatera alba splendens* and *Lavatera trimestrie* are good varieties, their large, showy, mallow-like flowers being often several inches in diameter; and for a convolvulus shaped flower their keeping qualities are very good, as I have, by experimenting with them in this respect, kept their flowers and foliage quite



FIG. 2404. ANNU. L CHRYSA THEMUM.



FIG. 2406. ARGEMONE GRANDIFLORA ALBA.
(Mexican Poppy.)

fresh for three days under treatment similar to what they would receive as cut flowers for decorative work.

Another class of annuals coming into favor are the annual rudbeckias, the beautiful brown and dark crimson markings of the base of the petals of these flowers makes them more acceptable than they otherwise would be, taking into consideration the almost objectionable and overdone appearance of many flower gardens, by the too general use of masses and rows of yellow flowers, such as *Rudbeckia laciniata* (Golden Glow) and the deep colored heavy looking sun flowers. Several very much lighter shades of these annual *Helianthus* or Sunflower have recently been introduced, their soft lemon yellow and almost white flowers making them less oppressive and objectionable as florists' flowers than the deeper orange shades of the older varieties of sunflowers.

There is one more annual I would like to mention, viz., *Argemone grandiflora alba*, or Mexican Poppy. Although the growth is coarse (3 ft.) the abundance of its pure white petalled flowers will especially commend it to florists, as it gives an abundance of blos-

som during August if sown in the open border in April. This plant has a habit of closing its flowers when on the plant at night and during dull weather, but when cut it remains open constantly. Although the stamens in the centre of the flower are yellow, it is of such a soft shade and texture that this feature is not as objectionable as it is for florists' flowers. For short time work it ought to be of value to florists, as large white flowers are so scarce oftentimes before the Asters make their appearance.

PERENNIALS.

I should like to have said a few words on perennials, but the time is so short and space will not permit except to say that the improvement in the class of plants are equally as noticeable as in that of annuals, and no general florist's establishment is complete without a collection of these useful and inexpensive class of plants. I have a few specimens of several of the varieties of plants that I have mentioned, amongst which will be found several varieties, such as *Helianthus cummerfolia*, *Helianthus decapulatus nanus*, that from their form and soft lemon yellow colors well recommend them to the notice of florists as useful summer flowering varieties.

In conclusion I would mention another class of plants that could be made of more service to florists in summer than they are at the present time, I have reference to Hardy Climbers, more particularly the Clematis. The beautiful colors and shades of those that are now offered, from the pure white of the Duchess of Edinburgh variety, *C. paniculata* and *C. Henryi* to the deep lavender color of *Standishii* or to the intense purple of the more common *Jackmanii*, will allow of no excuse for florists planting around and about their establishments—as we often see done—the common varieties of *Ampelopsis* and *Clematis*, when other kinds such as those I have mentioned might oc-

cupy to advantage and profit the places of the commoner kinds, and give results that would benefit their owners as well beautify their surroundings where planted.

I cannot close this rather lengthy, but I trust not altogether uninteresting, paper without again saying that although it is impossible and undesirable to supplant the queenly Rose, and I can almost say the

kingly Carnation, in the estimation of the flower loving public, still there are demands on florists that will sometimes not permit of the very general use of these as florists' flowers, especially at this season of the year, which I trust will be an acceptable apology and excuse for these remarks from me on "Summer Flowers for Florists."

A NIGHT-BLOOMING CEREUS



FIG. 2407. CEREUS NYCTICALUS.

PERHAPS the cactus that is most heard of is the night blooming Cereus. But there are many plants which are wrongly credited with being such, The Queen Cactus or *Phyllocactus Latifrons*, is one which is very generally supposed to be, and is called a night blooming Cereus, when it

does not belong to the *Cereus* family at all. It grows long, round stems, with thin, flat branches, from the edge of which springs the fine flowers. These are very large and beautiful, and as they open at night, the mistake of calling the plant the night blooming Cereus is quite natural.

All the *Echinopsii* are night bloomers also, and some think when the fine, large, trumpet-shaped flowers open, that they have a Cereus, but they are again wrong.

The *Cereus grandiflorus*, the true night-blooming Cereus, is a slender climber, and has no leaves at all, the stems being five and six angled, with short spines along the ridges. A fine wool comes along with the spines on new growth, and makes the plant distinct from many of the other slender climbing Cereus. Nearly all *Cerei* bloom at night, hence are night blooming Cereus, but the *C. grandiflorus* is queen of them all.

C. Nycticalus is a free bloomer, and its flowers are very large. A flash light photo of a fine bloom a foot across is shown in the engraving. It was taken about ten o'clock at night in the greenhouse where the plant stood. The stems of the plant can be seen close alongside the flower. A great many people visited the cactus greenhouse to see the flower when open.

Woodstock, Ont. J. H. CALLANDER.

WOLVERHAMPTON FLOWER SHOW

SIX TENTS FULL—WONDERFUL ROSES AND
BEGONIAS—A FRUIT EXHIBIT INCLUDED

REPORTED BY

A. McD. ALLAN, F. R. H. S.

THE second finest flower show in England is held here annually, and was the chief attraction to the Exhibition grounds the past week, as it was held in part of the beautiful park in which the great exhibition is. The prize money this year comes to the magnificent amount of nearly \$5000, besides a handsome silver challenge trophy and gold, silver and bronze medals.

The exhibits were staged in enormous tents most artistically, and competition is so keen that no trouble or expense is spared to make the most of everything. There were six tents, and exhibits were divided into classes, including groups of plants, the All-England section, gentlemen gardeners and amateurs, amateurs and cottagers, and table decorations. The prize collection in groups consisted chiefly of palms, crotons, ericas, ixoria, anthuriums, fuchsias, ferns, bamboos, *rumera elegans*, *pandanus veitchii* and others. The taste displayed in blending bloom and foliage and setting the plants so that the eye could take in all their elegance, and the entire absence of stiffness in the collection, even to the construction of a beautiful arch which formed part of this display, was remarkable.

Stepping into the rose compartment, England's flower greets the visitor with all the elegance of form and richness of color imaginable. It was hard to pick out the richest bloom in such a collection, but if any might be specially referred to I would call up Mrs. John Lang, A. K. Williams, Bessie

Brown, Comtesse Nadaillai, Mildred Grant, The Bride, Duke of Teck, Her Majesty, Gustave Piganeau, Mrs. Cocker, Marechal Niel. But space in your journal will be disallowed me if I continue through many collections of seventy-two distinctive varieties in each.

In the "All-England plant" section the visitor felt inclined to walk up and down to dwell upon the magnificent bedding and veritable stacking of foliage so rich, and bloom most gorgeous, and still nothing out of place or appearing as if packed unduly. But here was the competition for the challenge trophy valued at \$175, besides cash with it of \$25. We find *ixoria*, *phœnocomma prolifera*, *stephanotis*, *alamandas*, *anthurium skerziana*, raising themselves in beauty among other plants as if claiming special attention from the passer-by. But we dare not leave this paradise without referring to that charming flower that even the poorest peasant in the land may be enriched by, the sweet pea. These cut flowers formed a background that rose from near the ground to the edge of the tent as a mass of sweetness and beauty that almost tempted the visitor to cast himself into the delicious bed of all colors so blended as to stagger any but an expert judge. Jeannie Gordon, Grace Greenwood, and Lord Rosebery were present everywhere in that mass of glory, and the whole was enriched from that fact, for they seemed to appeal for a look from the visitor.

Begonias were beyond anything I had



FIG. 2408. FLORAL EXHIBIT AT WOLVERHAMPTON.

ever seen in the deep satin-like richness and delicacy of bloom and foliage, and the plants in the first prize collection were faultlessly arranged so as to blend in every respect. This blending of foliage and flower is a study that the English gardener is justly proud of, for he excels.

In the "gentlemen gardeners and amateur" class a bank in the shape of a half-moon consisting of a large variety of choice ferns, begonias in all shades of color, lilies, petunias, gloxinias, caladiums and many other remarkable specimens interspersed with graceful grasses, was one of the finest collections of the kind I have seen. Several magnificent groups in this competition must have given the judges thought in coming to

a decision, for all were large and grandly designed in form of a bank.

Table decorations were specially fine, and quite different from anything of the kind we see in Canada. The competition was keen and arrangement most artistic throughout. The flowers used were mostly sweet peas, orchids, and carnations, none of them bunched, but blended with an easy grace and entwined with one or other of the finest foliaged slender climbing vines, asparagus, plumosa and sprengerii, some of which had the appearance of rich lace, gracefully worked as if the bloom was part of the vine, while here and there weeping grasses made up the picture.

Although this annual event is called a



FIG. 2409. FLORAL EXHIBIT AT WOLVERHAMPTON.

flower show, there is also a fruit and vegetable department, and here we find grapes, peaches, melons, figs and nectarines, all from hot-houses and all large and delicious if we may be allowed to judge by appearance. Passing to vegetables, the collections are all worthy, though they bear the impress of having been forced for the purpose of this

competition. Specimens are small but clean, well formed, and as usual, skill displayed in setting before the judges in the most attractive form. Tomatoes were specially fine in appearance, large, smooth and in good color. But grown in hot-houses they do not possess the richness of flavor and the juice of ours.

Ordinary whitewash, as frequently used, has very little effect except to disfigure the trees. To destroy the insects and eggs hidden in the crevices of the trees very much stronger applications have to be used. Soft soap, reduced to the consistency of a thick

paint, with the addition of a strong solution of washing soda, makes one of the most lasting washes. A solution of one pound of commercial potash in from two to four gallons of water is also very good.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

THE WINTER MEETING

THE Executive Committee of our Association met last Wednesday morning and decided upon, Tuesday, Wednesday and Thursday, the 2nd, 3rd and 4th of December, as the best dates for the annual meeting, to be held at Walkerton, Ont.

Some of our readers seem confused over the change of management, and do not seem to understand that the business management is now in the hands of Mr. G. C. Creelman, Parliament Buildings, Toronto, to whom all business letters or money orders should be addressed; and that the editorship of the Journal still remains, as usual, in the hands of Mr. Linus Woolverton, Grimsby, Ont., to whom all articles for publication should be sent.

THE USE OF X'S IN GRADING

The use by so many apple shippers of X to denote No. 3 apples, and XX to denote No. 2, has made it necessary to discard these for No. 1 apples as proposed on page 401.

It is unfortunate that the Fruit Marks Act should have countenanced the use of X's on second and third grade fruit, which could as well have been indicated by No. 2 and No. 3; but until this is rectified we find it necessary to save confusion to fall in line and begin our grades of No. 1 apples with XXX instead of with X.

Our grades in future for No. 1 apples will stand as follows:

XXX	=	apples $2\frac{1}{4}$ inches in diameter.
XX XX	=	" $2\frac{1}{2}$ " "
XXX XX	=	" $2\frac{3}{4}$ " "
XXX XXX	=	" 3 " "
XXX XXX X	=	" over 3 " "

Question Drawer

A Pruning Book.

1306. SIR,—Would you please recommend a book on trimming trees? I am starting a small orchard of trees of various kinds, and would like to consult the best authority.

MRS. H. C. CORSON.

Middlehead, Cape Breton.

Thomas' American Fruit Culturist gives much general information on the care of the fruit garden, including much about pruning; but on the subject of pruning alone, probably the best work is Bailey's Pruning Book.

Robson's Crab.

1307. SIR,—I send you a seedling crab possessing some good points, viz., earliness, size and beauty. The tree is symmetrical and very productive. The season is the middle of August.

W. M. ROBSON.

The crab seems to be all that is claimed for it, but in these days crabs are not wanted in sections where the apples succeed. The sample is $1\frac{3}{4}$ inches in diameter, too small for an apple and too large for a crab. At any rate crabs are only in demand in cold sections where the apples are not so hardy. Possibly, if the tree is very hardy, this might be valuable for the extreme north.

Plans for Improving Home Grounds.

1308. SIR,—I am desirous of some information about fitting up a lawn. I have purchased a piece of ground 33 x 30 feet, adjoining my present premises. How would you lay it out, and what are the most handsome trees and shrubs to plant?

Hagersville.

JAS. SHELDRIK.

REPLY BY C. E. WOOLVERTON, LANDSCAPE ARCHITECT, GRIMSBY, ONT.

So much depends upon the surroundings that it is impossible to give any reliable advice without a personal visit. Trees and shrubs are planted about a place to hide objectionable views, to screen the occupants in part from public view, and to lend picturesque beauty to the whole. The size of

the lawn described is a little too narrow for a tennis court, which requires 36 x 78 feet; but it would afford an excellent croquet lawn, besides giving room for a bowling green, and still leave plenty of room for grouping of trees and shrubs. A few elms, and maples would be excellent trees for shade, shrubs and creepers should be grouped in such a way as to hide the fences and boundary lines, and choice exotic trees and shrubs used to lend attractiveness and color to the borders.

For the best results one should have a plan carefully drawn to a scale before beginning any work of this kind.

Introducing a New Fruit.

1309. SIR,—On the advice of Mr. G. C. Caston, of Craighurst, I write you about introducing a new peach, known about here as the Blood Peach. Ought I to send it to the Horticultural Farm, and would they avoid propagation from it. To whom should I send samples?

Port Colborne.

ELIZABETH F. AUGUSTINE.

First, you should send samples to the members of the Committee on New Fruits of the Ont. F. G. A. The names of the Committee are: L. Woolverton, Editor Canadian Horticulturist; H. L. Hutt, O.A.C., Guelph, Professor of Horticulture; and W. T. Macoun, Horticulturist, Central Experimental Farm, Ottawa. It would then be noticed in their annual report. Secondly, samples should be sent to prominent nurserymen, who would soon set a price on the control of the variety if they saw value in it.

Varieties For Home Garden.

1310. SIR,—I want to plant sixteen cherry trees, and shall be obliged if you will advise me what to plant. I already have Montmorency, Richmond, Dyehouse, English Morello, Windsor, one of each. I also wish to plant five or six plums, and already have Reine Claude, Red June Niagara, Yellow Egg, Burbank, one of each. I want to add

Abundance because it is early, or some other very early kind, the balance I want for about last half of September or early October. I also want fifty peaches, I already have Fitzgerald, Hill's Chili, Triumph, Crosby, Stewart, two of each. I intend to take chances on a few of early and late Crawford. The balance of the fifty, say forty I do not know what to do with, I want hardy trees but I also want large good fruit. I planted the trees I now have in May 1901, and allowed two peaches on the Triumph to mature this year, and they were very nice in color and quality though not large. My field is pretty well protected from south and west and by the time the trees are three or four years old will be better protected. I may add I am somewhat inclined towards the Diamond, Grand Duke, Monarch and Yellow Gage plums, figuring from nursery catalogues. My intention is to plant all these trees this autumn, of trees in size four to five feet.

T. A. SNIDER, Cayuga.

Locality and personal taste enter so largely into such a question as the one proposed by Mr. Snider, that it is scarcely prudent for us to name varieties in reply. It would be far easier to name varieties for a commercial orchard, because usually there is just one feature to consider, viz., which is the most profitable? The following are suggestions only of varieties which might be added to Mr. Snider's list.

Cherries—Cleveland, Black Tartarian, Knight's Early, Napoleon, Reine Hortense, May Duke, Royal Duke.

Plums—Bradshaw, Washington, Quack-enbos, Diamond, Grand Duke, Geuii.

Peaches—Sneed, Greensboro, Yellow St. John, Crawford, Elberta, Smock and Salway.

What to Grow in a Small Greenhouse.

1311. SIR,—I have made a small greenhouse, about 30 x 15. What would be the best paying crop I could put in to bring a quick return? Would lettuce and onions pay? What are the best kinds and management? Would cucumbers pay, trained against the bars of the roof on the north side? If so what heat and treatment would they require, and would there be any sale for them by Christmas?

C. POULLOY.

REPLY BY WM. HUNT, O. A. C., GUELPH.

Lettuce and radishes would be the best paying crops as there is a good demand for them in winter. A few onions might pay, but the demand for them would be more limited.

The best kinds of lettuce for forcing are the Grand Rapids Forcing and the Nonpareil varieties. There are several good varieties of radish for forcing, New Rapid Forcing, Triumph and Scarlet White Tipped, being three good kinds.

Cucumbers pay well in winter if properly grown and near a good market like Toronto. Use rich soil, composed of rotten sod from loamy soil. Two parts of this mixed with cow manure will make a good compost for them. A depth of four to six inches of soil is plenty, but give each plant at least three square feet of soil as the roots spread over a large surface. Cucumbers like plenty of water at roots and syringing once or twice a day. Use tepid water or lukewarm. Liquid cow manure and a thin mulch of rich soil should be given when the roots show on the surface of soil. Temperature 65 to 70 at night, 70 to 80 in day time.

How to Ship to Foreign Markets.

1312. SIR,—I wish to make a trial this year of shipping apples to England, beginning with the Gravensteins. The Department of Agriculture, Ottawa, has advised me to consult you in reference to the matter of shipping and especially in the securing of cold storage facilities. Any information that you may venture to furnish will be gladly received by me, as I am entirely without experience in shipping to England and do not know anyone in this immediate vicinity whom I could consult to advantage.

Port Dalhousie.

J. T. WHITE.

This is an easy thing if there is a little co-operation. The first thing to do is to make up a car lot, and if several shippers combine, and constitute one of their number the Secretary, it will be an easy matter to make a shipment every week or ten days. Then a reliable consignee in Great Britain must be decided upon, and the line of steamers most desirable for reaching him. Correspondence with the consignee should be had long in advance, in order to secure an interest in the class of goods to be forwarded; and with the steamship agent to secure the required space. Then the agent at the railway sta-

tion should be consulted, and he will secure a through bill of lading to the foreign port, a copy of which must be at once forwarded to the consignee, so that no delay shall occur in his getting possession of the goods. A full list of the goods, with grade marks, should also be forwarded to the consignee. If cold storage space is needed it must be calculated for in advance, and in estimating the amount required it will be convenient to know that a bushel equals about two cubic feet of space.

Our Fruit in British Columbia.

1313. SIR,—I see no reason why this trade could not be developed and possibly several shipments made every season. The grapes shipped in previous years have arrived in good condition, packed properly in suitable cars; a two weeks journey they ought to carry all right. Will you kindly think the matter over and advise me at the earliest possible date if you could supply the fruit. You know the contents of a car, and freight rate, and could then quote a price delivered. Small packages always preferred.

Vancouver B. C.

C. A. SCHOOLEY.

At present the distance, and the expense of transportation, prevent our shipping grapes to British Columbia. We shall not however give up the hope that in a few years, we will have such reasonable rates both at home and abroad, that we can reach almost any of the best markets of the world.

Fawcett's Seedling Apple.

1314. SIR,—I herewith send you a sample apple which I think worthy of your attention. You know that every parent thinks his crow the whitest, and perhaps that may be the way with me and my apple. However, this apple is a seedling. The enclosure is a sample of the first fruit, which speaks for itself; but I am sorry I have to send it before it is ripe, as a wind storm last night brought down all but three. I fear it may be found a little too acid. It will clearly be a winter variety. The tree is perfectly hardy and a good grower. I am sure the form and color will commend themselves.

Ottawa.

G. H. FAWCETT.

A magnificent looking apple, very large, bright red in color, over a green ground,

and of excellent quality for dessert. It seems to be in season in October, and we know of no equal to it as a table apple of the same season.

Triomphe de Vienne.

1315. SIR,—I am sending two pears by to-day's mail. One of them is Triomphe de Vienne. The tree bore fruit for the first time this year, and it was sent to me by Ontario Grower's Fruit Association in the year 1891. There are about more than one dozen on it. Tree is very vigorous, and its branches are very thick and strong, and leaves are very dark green.

The other pear is Idaho; it also bore fruit this year for the first time and the tree was sent by the Association in 1892. It seems not doing well, branches poor and short. The sample is rather inferior to what I expected. Its shape is much like Sheldon, but color is different. Catalogue says it is very large, and I rather think it is not correctly named. There is just six pears on the tree.

I intend to enter Triomphe de Vienne at our fair on the 30th Sept. and 1st October, for "Any other variety".

I would like to know if any other subscriber got that same pear in 1891 in Stratford or vicinity. Please give a reply by next mail and oblige.

Stratford.

ROBERT MCLAGHAN.

P. S.—I may inform you that Triomphe de Vienne tree is 15 feet high, 9 inches circumference six inches above the surface.

Idaho tree is only 8 feet high, 5 inches circumference. The Canadian climate and my land being clay soil may both affect the growth of the latter tree.

The Triomphe is a fair sample of this excellent pear, as we have grown it at Maplehurst, and we consider it a valuable variety for Canadian orchards. So far we do not hear that it has been grown except by those who have received it from our association.

The Idaho is probably true to name; the shape is correct, except that it is usually corrugated at the basin, and usually quite large in size.

In our opinion it was very much over lauded, and is of little use in Ontario. Some samples of it much resemble the Sheldon, but it is not equal to that variety in quality for dessert.

Open Letters

FRUIT GROWING IN QUEBEC

WORK ON JUDGE CARON'S FARM—
BLACK KNOT—WINTER PROTECTION

A LETTER FROM H. P. CARON, L'ISLET, QUE. .

SIR,—I always read your journal with the greatest interest. As the following might prove useful to some of your readers I will report on the crop of fruit for the lower part of the Province of Quebec. We have had a great deal of rain, almost every day. Also, in my orchard, where there are about 3000 trees, I have not seen caterpillars more than two or three times. I sprayed this spring with Paris green $\frac{1}{4}$ lb. to about 24 gallons of water mixed with one pound of lime. The strawberries have done very well, they are the James Vick and Sharpless, cultivated in rows 3 feet by 4. They fruited in great quantities, were free from all kind of diseases, but I must say they were very acid. I consider this due to the heavy rains. Our gooseberry hushes were overloaded. We cultivate in single rows, one single row between the apple trees, 6 feet apart. They are the "Smith Improved." We never have mildew. I spray with Paris green once in the beginning of June and once after the crop is removed. At the end of August I have a heavy pruning performed, removing the smaller shoots, only leaving two new shoots and cutting away the two oldest branches, which have been fruiting (this is the renewal system), and shorten the end of all the long branches. This gives great force to the gooseberry bushes, lets the air freely in, prevents the spread of diseases and the hatching of caterpillars. We sold the gooseberries from 20 to 30c. a gallon.

The raspberries were very plentiful—White, "The Golden Queen," red, Cuthbert and Marlboro. They took a first prize at the late Universal Exposition at Paris. We cultivate in rows 6 feet both ways. The fruit was not as firm as usual, due to the rain. The blackberries are covered with fruit. Our cherry trees were a great success, some trees of nine years old giving 10 gallons and more ; but I cannot say how much a tree produces really, because we are surrounded by a lot of poor people who eat freely of our fruit, not being invited to do so. In about 500 cherry trees I found this summer not more than 10 or 12 black knots ; but I must say that our plum trees are terribly affected by the black knot. The trees are loaded with plums. As soon as the fruit is picked I shall cut off and burn all the knots, and spray with a $\frac{1}{4}$ pound of Paris green to 24 gallons of water, with one pint of petrol oil. All the trunks of our trees have been washed with the same preparation. I think that the very wet weather has much to do with this disease, the knots are different from those of the cherry trees. The plum trees to look at seem in perfect health. Our potatoes this year are very good and yielding immensely, being planted on sandy hills ; but our cucumbers and melons are a complete failure. Last year we had some melons of the best quality, the only covering given was a thin cotton sheet at night. Our flowers are sad to look on, and we must

be content with dahlias, sweet peas and sunflowers. In August we have had rain, very high wind, and even frost. Our pear trees are doing very well, and I have succeeded in wintering out doors two peach trees. With proper protection I expect to succeed in having fruit. This part of the Province is particularly adapted to the culture of cherry and plum trees; they require care, attention, washing and heavy manuring. Every autumn we put a few

rough boards to prevent the freezing of the roots. The trees are latted at the beginning of October to prevent the bark being eaten by moles, etc. The laths are removed about the middle of May. The crop of apples is very large, but the apples are stained, due to the extreme rain.

Cats are kept to eat moles, rats, mice, etc., and birds never disturbed, as they eat so many worms. The currants have been neglected, as we cannot find pickers.

GOOD PRICES FOR EARLY APPLES IN WOLVERHAMPTON

PEARS FIFTEEN CENTS A POUND—PEACHES SIX CENTS
EACH—ASTRACHANS EIGHT CENTS A POUND

A LETTER FROM A. M'D. ALLAN, F. R. H. S.

THE first apples I noticed in the market of this season was Astrachans from Spain, which sold retail at eight cents per pound. They are fair in size but lack the color of ours, are coarser of texture and not so juicy and sprightly.

The Keswick Codlin is used for stewing when half grown and many even eat it out of hand when no larger than a walnut. The fruiterers all had it for sale at four cents per pound; the first week of this month.

August 8th, I observed quantities of Yellow Egg Plum in the market at four cents per pound, and was curious to know what on earth anyone could use it for when perfectly hard and green and before attaining full growth. It is pickled, and also made into jam for pies; put up in pots it is kept sometimes for winter use. Osband's Summer Pear from Jersey reached market on the 9th, and brings twelve cents per pound, very small, and where soft is mealy and flavorless. Small Green Tyson, also from Jersey, brings twelve cents per pound, and like others lacks that fruity flavor we are used to.

Green Gage Plum is good size and we recognize the quality, but it lacks juice. It comes from France and brings twelve cents.

On the 12th, Barletts, from Jersey, light green, medium in size, dry and flavorless, bring fifteen cents per pound. Jargonelle (English), about size of quarter grown Vicar, slightly russet, green, knotty, twelve cents per pound.

The Jersey Pears are packed in boxes with brown paper between layers, not wrapped, but samples are of even size throughout and all clean. Plums are also packed in a similar manner in small boxes usually about twenty pounds each.

On the 18th, some English Astrachans appeared, but the samples are smaller than the Spanish and insipid in flavor.

Peaches from hothouses are very fine in appearance, but this luxury costs the consumer six cents each. The skin is much thicker than ours, flesh firm, but lacks the juice. Apricots bring eight cents each, and specimens are grand, large and high in color. I thought it a pity to taste these, as the sight of a box containing a single layer,

with each specimen folded in clean white paper was enough to feast the eye upon, and my pen shall not record a word against the beauties. The fruiterer knows how to attract the customer and presents this picture prominently in his window with the spotless paper folded back loosely from each specimen to shew the rich contrast of color. Our hand naturally feels for our purse, but no, let us leave it at that, and look at those grapes at from 12c. to 28c. per lb., according to size, all luscious. Yes, grapes are very fine, but of course all are hothouse varieties, and such is the English taste. I cannot wonder that we cannot find a market here for ours, and we will not until a taste is cultivated among a class of consumers who cannot afford to pay high prices.

Although there is so great a demand for fruits of all kinds here, I can see clearly that it pays to make the brands before shipping, and whatever these brands may be let them always be perfectly even. No matter what time and labor it may cost, separate the samples with the utmost care, and do not let a choice brand be spoiled by a single spot or sample under size or lacking the points of its kind to make the brand perfect. If you wish to pack spotted fruit we might be

tempted to say select in accordance with the number and size of spots, having brands for single spot and so downward!! A word may be sufficient to convince some packers, would that all might heed us.

I cannot but feel that fruit growing has become a partial failure in this country because growers neglect their orchards. We generally hear them say, "What is the use in trying, as these Canadians will undersell us in all our markets with our own varieties of much finer size and color." But where will our growers be in a few years with neglected orchards? Of course our bright sunlight will always do its duty, but what of that if the substance is not supplied to the soil, and if the trees are not kept free from filth and relieved from a burden of useless wood?

I walked through the market on farmers' day lately, and was struck specially with the fact that almost every farmer was not only dressed in his best, but had a button-hole bouquet. He looked natty and tidy, and invariably had well blackened boots. I am told this is also the case in every village market, and is worthy of note, and as it should be.

PEARS IN COLD STORAGE AND OTHER FRUIT MATTERS

A LETTER FROM MR. R. BRODIE, OF MONTREAL.

SIR,—With reference to the Flemish Beauty pear in cold storage mentioned in the July number of the *Horticulturist*, I may state that the pear gathered and packed under the same conditions as those put in chemical cold storage and stored in our own cellar, ripened up nicely and gave good satisfaction to the purchaser and commissioner.

The apple crop is very good in this locality,

Fameuse, Wealthy, Ben Davis, Oldenburgh above the average. When trees are not well sprayed, there are lots of apple spots (fungi); the worst insect enemy is the apple curculio, spraying has no effect. I was surprised to see the effect of the severe frost of the 10th May on the plum trees. The frost did not injure the first buds of most of the European varieties of plums (*Prunus Domestica*) leaving us a very good

crop; while the fruit buds of American varieties (*Prunus Americana*) were very much destroyed with the frost, also the Japanese varieties, Abundance, Burbank and Willard. Would you kindly give the dimensions of the Grimsby apple case. I have been using a case the same as the California case holding about 40 lbs. of apples.

The apple box used by us in exporting apples measures $10\frac{1}{2} \times 11\frac{1}{2} \times 22$ inside

measure and holds about one bushel of apples. If this were taken as the outside measure it would mean a box holding about 40 lbs. of apples, and indeed be practically the same as the California apple box. We have preferred to take these as inside measurements, because in packing we can just fit in the apples $4 \times 4 \times 8$, of No. 1 stock, $2\frac{1}{2}$ inches in diameter; or a total of 128 apples in a bushel box.

CORK INTERNATIONAL EXHIBITION, 1902

A LETTER FROM MR. E. H. WARTMAN, DOMINION FRUIT INSPECTOR, MONTREAL.

SIR,—It may be your pleasure to publish a few lines from my note book. As Superintendent of Fruit at International Exhibition, Cork, Ireland, my time is fully taken up telling the people here how successful the fruit growers of Canada have been in the cultivation of various kinds of fruits. When I tell them we can grow apples at a profit at one dollar per barrel, and grapes, pears, plums and peaches, a ten pound basket at thirty cents, they look astonished. I saw some very nice peaches in a fruiter's window. I went in and priced them; they asked 6d. to 1s., or 12c. to 24c. each. Although my mouth seemed to water, I came away minus any. I have visited a number of "as they call them" orchards in the vicinity of Cork. They all have twelve foot stone walls around them. This wall serves a two-fold purpose, for concentration of heat as well as a good support to tack vines or various kinds of trees to. I tell them of our hundred acre orchards that it would be impossible to put a penitentiary wall around, as we can put our stone to better use; but they say unprotected orchards here have all their fruit stolen. Then I tell them to try Canada, where thieves seldom break through and steal. The fruit

growers of our Province will see the people here have many discouraging things to contend with. The visitors to our pavilion are most unanimous in saying it's the best show on the grounds, which is a pleasure for us Canadians to hear, and gives encouragement still to do better in the future years.

I have about 20 kinds of our apples on table yet in a good state of preservation this 18th day of August, 1902. On the 8th of August I made a thorough examination of a number of boxes of apples with the following results: Baldwins, 56 per cent., sound; Phoenix, 46 per cent.; Golden Russet, 57 per cent.; Canada Red, 55 per cent.; English Russet, 86 per cent.; Rox Russet, 95 per cent.; Nova Scotia, Nonpareil, 86 per cent.; Mann, 80 per cent., sound. I consider this speaks well for keeping quality of our apples, as this lot were repacked out of barrels that had been pressed very hard for export and badly bruised. Had they been carefully selected from trees, cooled, wrapped and boxed, results would have been better. It is very natural for people of this country to ask me how we keep our apples so long. I tell them in the first place it is the climate that makes our apples of so good keeping quality, in fact the best keepers in the world; tha

we pick our apples carefully and keep them in cool air, which prolongs their lives. Now there is one thing I have heard about our apples in England and Ireland which I dislike very much, to the effect that our apples are dry and woody. One gentleman said, "I don't know whether they are American or Canadian, but wish they would keep their apples at home." Now this seemed to warm my Canadian blood and I commenced to cut a few of such apples as Spy, Wagoner, Spitz, reminding them they had been gathered over ten months ago, which would result in a certain amount of good being evaporated, and they unanimously said "marvellous, marvellous." But can we wonder at people saying our apples are dry and woody

when so large a percentage of our apples are Ben Davis? I fancy this is the secret of such remarks; their beautiful color and symmetrical form attracts the buyer.

Their shape, color and keeping quality is unsurpassed, but what good is an apple without lots of well flavored juice? It is said by some one Ben Davis improves while crossing salt water, but I think this statement is a farce. How many apple growers in Canada lay aside carefully Ben Davis for home use? Fruit growers of Canada, it would pay you to consider this subject carefully and come to conclusions very soon on such an important subject. Hoping these lines may be of profit to some one, I remain, yours faithfully, E. H. WARTMAN.

A SPRUCE GALL LOUSE

DEAR SIR,—I have read Mr. G. E. Fisher's letter in September Horticulturist about the application of fumigation methods to the destruction of the Spruce Gall Louse. So far as I know the life story of this insect the gall louse passes the winter about the base of the bud in a half grown state, and not in the egg state. I was not aware that the louse was viviparous. I was under the impression that the louse, not long after being hatched in May, formed a gall at the base of the leaf, and remained within the gall until the middle of August, when it emerged to lay eggs. I believe, with Mr. Fisher,

that with small shrubs it would be quite practicable to fumigate, but how would he pitch his tent when he had rows of tall spruce trees to deal with? I have found the whale oil and soap and tobacco solution effective if applied when the young gall lice were moving. This movement occurs twice a year, on hatching from the eggs about May 10th and August 20th.

I should think, also, that these dates would be the best for effective fumigation, for the lice are practically living in gas-tight cells from June 1st to August 10th.

"A SPRUCE LOVER."

News from the Societies

Kincardine.—The Horticultural Society of this place held their Sixth Annual Exhibition of Pot Plant and Cut Flowers in the Town Hall on Friday last. The display was first-class which proved that the efforts of the Society in the encouragement of this refining recreation is being appreciated by old and young.

The display consisted of common and rare plants so nicely arranged on the tables that the blending and harmonizing of color and form gave an addi-

tional beauty to the common without detracting from that of the rare. There were rubber plants and palms, ferns, asparagus, sprengeri, geraniums, gloxinias, and begonias, with hosts of other plants no less beautiful. The Otahite orange trees, one with ripe fruit, was to many a great curiosity. Some of the plants and trees exhibited required a great deal of care and skill in handling and the wonder is that only one mishap occurred in the handling of so many hundreds of pots and vases.

On the platform were some gorgeous specimens of vegetation. Wherever a position was to be had that could add dignity to the surroundings a magnificent tropical or greenhouse plant or tree was to be found.

A rubber tree of about seven feet in height with its bright olive green, leathery leaves was a point of admiration. Others as beautiful tho not so large filled positions no less inferior.

A branch of a peach tree laden with ripe fruit (24 peaches in a cluster), caused many to stop and make the enquiry, "Can such peaches as these be grown in Kincardine?" Mr. E. Miller is the grower. A snap shot was taken of the prolific branch.

A very large agapanthus in full bloom was a much admired plant. In the center of the platform was a tall and graceful spike of campanula with its scores of bell-shaped mild lilac flowers. A tripod with a beautiful jardiniere just visible through a maze of asparagus sprengeri, and a grand vase with choice asters held prominent positions. These with castor beans, sword ferns, cacti, etc., rendered the platform a "thing of beauty." Some music to enliven and cheer the admiring spectators was given by the Misses Smith and Henry on the piano.

Woodstock.—Another very successful garden meeting of the Horticultural Society was held last night at the residence of Mr. Wm. Grey, Graham street. The attendance was unusually large, proving that the holding of garden monthly meetings brings out more members and their friends than when the meetings are held in the Council chamber. Those present at last night's meeting spent a very pleasant hour between seven and eight o'clock, seeing Mr. Grey's vegetable, fruit and flower garden, and walking about his well-kept lawn. The distinctive characteristic of Mr. Grey's flowers is that a considerable proportion are old-fashioned or those that were common a quarter of a century or more ago. Many of these are now popular in the most modern gardens and they were seen last night with evident pleasure. Several evening primroses attracted general attention as they came into bloom while looking at them. But Mr. Grey's fruit and vegetable gardens are quite equal to his flowers, and he has an abundant crop.

At eight o'clock the regular monthly meeting was held in the spacious parlor. The chief business was the making arrangements for the forthcoming horticultural exhibition. The President reported for the committee in charge that they had selected the market building as the place for holding the

exhibition, and this was approved by the meeting. It was also decided to hold the exhibition on Wednesday and Thursday, the 20th and 21st of August. A large committee to carry out all the arrangements was then appointed, including the following: Mrs. Davidson, Mrs. Hoare, Mrs. H. J. Finkle, Mrs. Dawson and Miss Moyse, together with the President, Secretary and Messrs. Woodroffe, Richmond, Sproat, Calender, Hoare and Dawes. This committee will meet at an early date.

THE FIRST SOCIETY.

The President, on behalf of the Society, thanked Mr. Grey for his kind invitation to hold the meeting on his grounds and for the pleasure which had thereby been afforded the members of the Society and their friends. He also requested Mr. Grey to give a sketch of his horticultural experiences in Woodstock and of the formation of the first horticultural society. The latter, Mr. Grey explained, was formed, according to his recollection, some time in the forties. The late J. T. Cottle was a prominent member, and the first exhibition was held in his house, then a frame one, which subsequently gave place to the brick structure known as Altadore. Two subsequent exhibitions were held, the latter being a failure. After that the Society seems to have collapsed, but it was revived in the fifties, and if we recollect aright, also in the late seventies, prior to the formation of the present organization later on. Mr. Grey mentioned a Mr. Jones, a blacksmith in the east end, as one of the pioneer settlers who indulged in flowers. The gentry, a large number of whom were located in Woodstock and vicinity at that time, had also creditable flower gardens. The Cottle's, the ladies of the Graham family, George Alexander, Deblaires, Vansittarts, General Murray and others cultivated flowers and helped to give an impetus to their general cultivation in the then "clearing" and subsequent village, town and city of Woodstock. Mr. Grey also mentioned the formation of the first Agricultural Society, whose exhibition was held for some time on the Bettridge property below Riddell street, later on what is now Victoria Park, then to the grounds west of the present C. P. R. railway, and finally to the present fair grounds on the Alexander property north of the city.

Mr. Grey's story was listened to with interest and pleasure by those who heard him last night, and at the close he was accorded a hearty vote of thanks. The serving of light refreshments by the venerable host, and Miss Sharp brought to a close an unusually interesting meeting of our local Horticultural Society.



FIG. 2450. THE TRIUMPH PEAR

THE CANADIAN HORTICULTURIST

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NUMBER II

THE TRIUMPH PEAR

(TRIOMPHE DE VIENNE.)

SOME years ago our Association sent out among its members trees of the Triomphe de Vienne pear, asking them to report on its merits. Previous to this we do not know of its being grown by any one in Ontario. The tree which was sent to the writer has now been bearing fruit at Maplehurst for several years, and we are so well pleased with it that we have made it the subject of the frontispiece for this number.

Like the Anjou, Bartlett, Duchess and many other excellent kinds, it is of French origin, but it finds in Ontario a congenial soil, and promises to be an excellent commercial variety. One point in its favor in these days when we are so given to value everything in dollars and cents, is its large size and showy appearance which would command attention in any market, but, in point of flavor, it is not equal to many other well-known kinds.

The tree appears to be a fine healthy and vigorous grower, and, considering the size of the fruit, may be said to be productive.

The flesh of this pear is creamy-white in color, buttery in texture, and rather juicy,

while the flavor is sweet and very good. In season, it is later than the Bartlett, coming in between the 15th and 30th of September. The season of maturity, however, is of less importance these days than in the days before cold storage, for by this means we can keep tender pears for many weeks after their natural season of maturity.

One of the most important questions which we can ask about a new fruit is its shipping qualities, for, if in ordinary cold storage we may, without too great risk, send a fruit to a foreign market, we may plant it with the assurance that, if our home markets become glutted by over production, as indeed they are certain to be, we may yet dispose of our products across the sea at reasonable prices.

Looking over the list of pears commended as desirable for planting in Ontario, with a view to export, we find in our experimental plot two others which seem worth adding, namely the Hoosic and the Pitmaston, the latter of which we are inclined to look upon with especial favor, and will take an early opportunity to describe for the benefit of our readers.

Mr. McLagan, of Stratford, sends us a sample of this pear grown in his garden from a tree sent him by the Ontario Fruit Growers' Association in 1891. He finds the tree healthy, vigorous and productive, and

values the fruit quite highly. We shall be pleased to hear from any other members of our Association regarding its merits or its faults.

Notes and Comments

WOODSTOCK FRUIT AND FLOWER GROWERS



Fig. 2451. (Leave from our Artist's Notebook.)

RETROSPECTIVE

IN 1850 Woodstock became a town, and in 1901 a city. The growth has been most rapid, owing to a combination of favoring conditions, for example, its beautiful situation, the net-work of railways centering here and giving convenient shipping privileges, the consequent important factories, such as Mr. D. W. Karn's organ and piano factory, the Woodstock wagon factory, the Bain wagon factory, the Anderson furniture factory, the Hay Sewing Machine Co., the Stewart stove works, etc., industries which suggested its title "The Industrial City."

Her citizens point with considerable pride to those pioneer noblemen whose presence in early days gave character to the social life of the town, such men as Admiral Vansittart, whose residence at Eastwood is full of curios and paintings by great masters, Lord de Blaque, Rev. Wm. Bettridge, distinguished both in military and clerical circles, and others.

A RECENT VISIT

THROUGH the courtesy of our respected director, Mr. J. S. Scarff, ex-Mayor of the town, we had the privilege of seeing the town on a bright October day, and of a



FIG. 2452. PIONEER NOBLEMEN.

carriage drive among the fruit and flower growers of the neighborhood.

A day spent in company with one so familiar with the place and people was indeed a treat, and led one to hope for another such day when we might see many others on our list of those who have helped to forward the interests of horticulture, and from whom we might gather many interesting notes for the benefit of our readers.

THE RIGHT MAN IN THE RIGHT PLACE.

WHAT a satisfaction it is always where we find the man who is just fitted for a certain duty! and in Mr. J. S. Scarff we found such a man to forward the inter-

ests of our Association at Woodstock. To quote from the Sentinel-Review :



FIG. 2453. EX-MAYOR SCARFF.

"Mr. James S. Scarff has been a resident of Woodstock since 1852, except for two years spent in California. In early life he carried on a carriage business with his father, the late William Scarff, but latterly has lived retired. He has been prominent in municipal matters, serving several terms as councillor, deputy-reeve, and one term as

mayor of the corporation. He has been secretary of the Board of Trade and Agricultural Society, and is now secretary-treasurer of the Horticultural Society. Mr. Scarff was chief engineer of the fire brigade at the time it rendered assistance during the big Ingersoll fire, and he can look back upon a life associated with most of the public movements during the last third of a century."

"Yes," said Mr. Scarff, as we drove along a country road. "I have been here for fifty years, and have always had my own way to make. I made my first capital about thirty-

must take opportunities which they neglect. Now Mr. Scarff has reached a position of wealth and affluence, and he could point with pardonable pride to a street lined with comfortable homes placed there by his capital.

WOODSTOCK FLOWER LOVERS

IT was in 1885 the first Horticultural Society was formed in Woodstock, but but for eight years it had disbanded, when, in 1895, we were instrumental in the formation of an affiliated society, of which the success is most worked. Mr. Scarff has been



FIG. 2454. COUNTRY ROADS ABOUT WOODSTOCK.

five years ago, when, aside from my trade, I rented about one-fifth of an acre of ground and raised plants of cabbage, cauliflower and celery for sale. I was successful in disposing them direct to private homes in the town for their gardens, and actually banked \$235 off that one-fifth of an acre in one season. This encouraged me to do a considerable amount of market gardening, the produce of which I always sold direct to consumers, and thus got full value."

How true it is, that to excel others we

secretary almost from the beginning, and upon him has therefore devolved a great share of the responsibility.

It was with great pleasure that we responded to the invitations of those past presidents to go over their private gardens, viz., Mr. T. H. Parker, Mr. D. W. Karn, Mr. G. R. Patullo, the latter of whom has been re-elected for 1902. Mr. Parker's cold grapery is a success, and there were still hanging fine bunches of Black Hamburg, Rose Chasselas, Chasselas Marqu , and Muscat Ham-

arches thus formed are full of the finest show of bloom, and form a beautiful picture. These are of course renewed every two or three years.

EVEN PEACHES SUCCEED AT WOODSTOCK

SOME years ago, when the late Prof. J. E. Wells was Principal of Woodstock College, we sent him a few peach trees to plant in his garden, wondering at the same

burg. This latter is most delicious in flavor and worth all the trouble of growing, for our ordinary varieties are very inferior to it. No wonder Mr. Parker carries of so many prizes at the Fairs for choice grapes.

ARCHING HIS ROSES

MR. PARKER'S plan of arching the flowering branches of his outdoor roses is commendable. He plants them 4 or 5 feet apart, a long upright growth of young wood, which he then bends over from each plant to form an arch, tying the over-lap with string. The

time if it were possible to grow so tender a fruit at this the highest point in Ontario. Imagine our surprise on this visit to find not



FIG. 2455.

"A City Garden" scene, which forms the centre of the above group, is taken from the gardens of T. H. Parker, Vansittart Avenue.



FIG. 2456. DOYLE BROTHERS' GREENHOUSES.

only Elberta, Fitzgerald and other fine varieties growing and fruiting in the gardens of Mr. Karn, Mr. Parker and Mr. Patullo, but also to find in Mr. Pitman's orchard, far up the highest point, a fine thrifty orchard of the finest varieties, and yielding excellent crops. We noted the same thing in Mr. McLean's orchard; he grows small fruits, pears and peaches in abundance, and unites with fruit-growing the business of fattening and shipping poultry, a good combination, and apparently very successful.

One advantage these men have over us in fruit-growing centers is that they have a fruit market at their very doors, and can sell direct to retailers, while we have express charges and commission to pay, much reducing our profits.

THE ANJOU PEAR

DOES particularly well in Mr. Pitman's orchard, situated on this high elevation. One fine old tree was pointed out, a standard about twenty-five years planted, which averages a yield of three or four barrels per annum, and all fine, clean large sized fruit. "What can you get for such pears here?" we asked him. "Well, about 25 to 50 cents a bushel. I just put them up in barrels and sell them in Woodstock."

"You should export such pears as those," we said. "That variety is one of the very best export pears, and often brings as much as \$2.00 a half bushel case on the Glasgow wholesale market."

"The trouble is," said Mr. Pitman, "nobody else here is exporting pears, and I would not know how to go about it alone."

Of course that is the trouble, and until our fruit growers learn to act more in concert, they will continue to be the willing subjects of speculators.

A certain number of fruit growers in each district, say eight or ten, should agree together from the very start in their business, by planting certain special varieties of ap-

ples, pears and peaches, suitable for export, so that when they come into bearing, they can make car lots for export, and work their business independently of speculators. They should elect a president and secretary, and secure the lowest through rates to the best markets, and agree upon a consignee who will give them honest account sales.

THE ONTARIO APPLE

SUCCEEDS SPLENDIDLY WITH MR. PITMAN.

"**H**OW does Ontario compare with Spy in your orchard?" we inquired of Mr. Pitman.

"Oh, it is more satisfactory in my opinion. When you get it, the Spy is just as good or better, but you could afford to grow and chop out an orchard of Ontario by the time the Spy begins to bear."

"How early have you had fruit from your Ontario trees?"

"Why, some of them have begun bearing at two years of age! I like the Ontario. It is a smooth, clean apple, and packs well. It is an excellent shipper, and is less subject to codling moth than many other apples."

"Well," said Mr. Scarff, "I believe Mr. Pitman's opinion of the value of the Ontario is about correct. The first tree planted about here was the one sent me by the Ontario Fruit Growers' Association, and so, indirectly, I have been instrumental in introducing it to the growers about Woodstock, and I do not regret it."

"The Pewaukee," said Mr. Pitman, "was planted in my orchard before I bought it, and I have no liking for it at all. It is ill-shaped, poorly colored, and drops very early. I cannot see why it has ever been recommended to us growers as a valuable variety."

APPLE PRICES

MR. NANSKERVILLE has a few acres of fruit just inside the town; he complains of spots on his Greenings which unfit them for first grade. His Spys, however,



FIG. 2457.

were very fine. He had already sold his apples at from 75c. to \$1.00 for the fruit, right in the orchard.

ROSES AND CARNATIONS

ARE grown quite extensively by Doyle Brothers, who have eleven acres in truck gardening, and some 10,000 feet of glass, chiefly for the production of roses and carnations. The business seems to grow very rapidly, and this fall they have set under glass about 5,500 carnation plants, and about 1,500 roses. Of the latter the more prominent varieties grown by them are Birde, Bridesmaid, Souvenir de Wooten, and Lady Dorothea.

BETTER THAN X'S FOR GRADE WORKS

ARE certain definite terms. One, two and three X's are well enough, but when you want to show the higher grades and put on six or seven X's, it becomes confusing to both buyer and seller.

At the very outset, two or three years ago, we used the terms No. 1, A No. 1, and extra for three sizes of No. 1 fruit; and it is not easy to improve upon these marks. Here is the whole table of grade marks as we have used them in the export of boxed apples, and a shipper may choose any column of marks, but we commend the third as the simplest. Beginning with the poorest grade, we have



For No. 2 apples,

X	or	No. 3
XX	or	No. 2

For No. 1 apples,

2 1/4 inches	XXX	Small or dessert
2 1/2 "	XXX	No. 1
2 3/4 "	X XXX	A No. 1
3 "	XX XXX	Extra
over 3 in.	XXX XXX	Extra large

UNIFORMITY IN GRADE MARKS MOST DESIRABLE

NOW these marks are most suitable and convenient. Perhaps they seem too many to those who have bulked everything together, big or little. But those days are passed, and we find that uniformity of size in a package pays in dollars and cents. Now if all who try to put up graded fruit would adopt these marks and grades, we would soon find the confidence of the British buyer growing, and our goods in greater demand.

AN INSPECTOR'S OPINION ON GRADE MARKS

MR. A. McNeill, one of the Inspectors under the Fruit Marks Act, looked over this copy before it went to our printer. "You are on the right track," said he. "Those X's are confusing, and your 3rd column is much better. Those terms describe exactly the grade, and are fully in accord with the Fruit Marks Act.

"Ordinarily speaking, most shippers will simply ship No. 1 and No. 2 apples; but of course you who put up fancy grades in boxes, and use a grade to reach uniformity in size, will need the higher grades.

"The speculators, who buy largely, will not grade as you do. How can a man, who handles 40 or 50,000 bbls. of apples in a single season, stop to do it."

"Well, the whole question, in a nutshell, is, would it pay? If 25,000 bbls. so graded would give as much profit as 40,000 carelessly graded, then it would pay."

PRUNING THE GRAPE VINE

THIS work is usually left for the month of March, a cold, chilly month, when the pruner suffers most severely from exposure at such

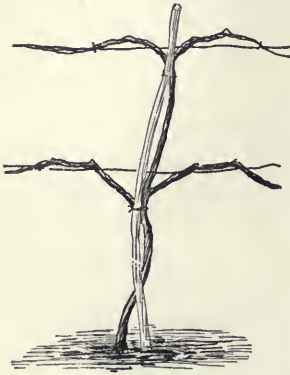


FIG. 2459.
KNIFFEN SYSTEM.

quiet kind of work. In northern sections where the wood is often killed back in winter, it may be best to wait until the cold weather is past before pruning, but in the greater part of Ontario it is better

to begin pruning in November. The vines should be pruned and laid down, so that the snow will protect them from the severe cold. Then the brush should be dragged out to the end of the rows with the harrow, and burned, thus destroying many fungus germs.

Most grape growers prune altogether too little. Such thrifty growers as Concord and Niagara produce altogether too much wood, and if all is allowed to remain, not only will there be much fruit, but much of it will be poor in quality, and the branches



FIG. 2460.
KNIFFEN SYSTEM.



FIG. 2461.



FIG. 2462.

THE FULLER SYSTEM.

ill-shaped; while fifty buds will give as much fruit as the vine can mature to perfection. A fairly good general rule with Concord is to reduce the canes to five in number, and cut these back to nine or ten buds each. The Delaware should be cut back more severely still, while the Rogers grapes need not to be cut back so closely.

THE KNIFFEN SYSTEM OF GRAPE PRUNING

IN those mild sections, where it is not necessary to give winter protection, the the Kniffen system is advisable because of its simplicity. As shown in our engraving the vine is cut back to four arms, thus requiring only two wires, and the young growth hangs down, and does not need any summer tying up. Very often these arms



FIG. 2463.
THE FULLER SYSTEM.

are renewed by replacing with a strong young branch from a bud near their base. This is the quickest and least expensive method, but the objection to it is that in time a vineyard so pruned is unsightly with old wood which cannot be laid down for winter protection.

THE FULLER SYSTEM

THIS is a modification of the old country Renewal method, which called for the cutting back each year of every alternate upright to within two or three buds of the main arms; while this method requires the cutting back every upright annually. The old method is best for such varieties as Rogers, which are not over vigorous, but the Renewal is better adapted to our more vigorous growers.

The method is well explained by the accompanying engravings, showing a vine allowed to produce one upright branch the first year, Fig. 2461, two uprights the second year, Fig. 2462, and the third year these two trained horizontally on the bottom wire, to form permanent arms from which young uprights are grown each summer. Every fall, these should be cut back to within one or two buds of the main arm, in the case of Worden, Concord or Niagara,

and there will still be enough wood left to produce as much fruit as the vine ought to bear.

SUMMER PRUNING THE GRAPE

IS too little observed among Canadian fruit growers. The rush of work is usually so great, and the workmen employed so few, that the vines are too often allowed to have their own way, and grow in the most rampant fashion, giving little opportunity for the fruit to reach its best development, and wasting the energy of the vine in producing and maturing a mass of useless wood. The surplus shoots should be rubbed off with the thumb and finger as soon as they appear, and the canes should be pinched back four or five joints beyond the last bunch of grapes, so that the strength of the vine may be forced into the fruit.

FRUIT TALK AT ST. CATHARINES FAIR

THE smaller fairs seem to be taking a new lease of life, through the exertions of Secretary Creelman and the local officials. At St. Catharines on the 17th we found a magnificent display of fruit, and the fruit men gathered at the door of the main building to listen to In-

spector McNeill giving a demonstration of grading and packing apples. After showing what apples should grade No. 1 and what No. 2, Mr. McNeill, with Mr. Robert Thompson's assistance, packed a barrel of apples for export; he then showed several box packages and advised their use for fancy fruit. In 1901, he said, California shipped 200,000 boxes of apples, and even British Columbia were larger shippers of boxed apples than Ontario. The California people use a smaller box than we are using in Ontario; ours when filled weighs about 55 pounds and theirs only about 40 pounds. It measures outside $20 \times 12\frac{1}{2} \times 9\frac{3}{4}$, and inside $18\frac{1}{2} \times 11\frac{3}{4} \times 8\frac{1}{2}$. It takes about four of them to a barrel. "We have too long been trying experiments in introducing new packages. Why not just accept California boxes, that are already known in the British market," said Mr. McNeill.

Mr. Geo. E. Fisher objected, because the Ontario bushel box is a better box and stronger. Besides it has a great advantage when calculating cold storage space, because being practically $1 \times 1 \times 2$ feet, it measures just about two cubic feet; while the pear half case is the same superficies and measures only one cubic foot.

"I think," said Mr. A. H. Pettit, who was showing his new apple grader, that the California box is too weak, the sides are too thin, and for long shipments are not to be compared to our Ontario apple box."

"I am a little disappointed in my first returns for winter apples in boxes," said the writer, "for, while barrels of Kings are reported selling at from \$5.00 to \$6.00 a barrel in Great Britain, my boxes are only selling at from \$1.00 to \$1.50, and there are scarcely three boxes to a barrel!"

MIGHT EXPORT PEACHES

DEPUTY MINISTER JAMES, of the Ontario Agricultural Department, is of the opinion that with proper export faci-

ties a big trade in peaches could be built up between Canada and Great Britain, such as now exists between the Old Country and the United States. He did not think that speed was such a factor as proper cold storage accommodation. In many districts of Canada, such as the Niagara and Essex fruit belts, magnificent peaches were grown which would find a ready sale in England at good prices if they could be got there in really good condition. Mr. James remarked that the United States peach export trade had been to a large extent fostered and built up by Government efforts.

As a sample of the prices which obtain for this luscious fruit in England it may be mentioned that a citizen of the Republic recently remarked to *The Mail and Empire* that he got the shock of his life at a London (England) restaurant. After lunch, he casually ordered half a dozen peaches, forgetting how far from Peachland he was. The shock came when he had to put up half a crown (60 cents) each for them.

MR. R. L. HUGGARD AT LINDSAY FAIR

IT would be a good thing if we fruit growers could oftener exchange visits at fairs, but our fruit harvest makes it very difficult. Mr. R. L. Huggard writes the *Sun* of the fruit at the Lindsay Fair as follows:

In fruit, the exhibit was exceedingly fine, notwithstanding the cold, rainy spring. Lindsay vicinity must be a splendid fruit section, as many sorts, such as Kings, Greenings and some others, especially Fameuse and Wealthy, were superior to the same varieties shown at the Industrial. The same applies to pears—Bartletts, Clapps' Favorite, and Flemish Beauty, with several other kinds equally good. Quite an exhibit was also made in plums, both of native and foreign varieties. There was, too, a plate of beautiful Fitzgerald peaches. I afterwards saw some of the fruit on the trees in

the handsome and well cultivated grounds of Mr. Robson, who has one of the neatest appointed gardens in town, just alongside that of Thomas Beal, who is truly said to be the father of horticulture not only in the town, but in the surrounding districts.

Immediately south of the Exhibition stands the beautiful new hospital, which was a gift of Mr. Ross of Montreal, a former resident of Lindsay. The building and the location are simply magnificent, and would well repay a visit. The beautiful edifice is to be officially opened in a few days.

PEAR CANKER.

THIS is a disease which has been hitherto confounded with pear blight, but recent investigations prove that it is quite distinct, and is caused by a well-known fungus, *Sphaeropsis Malorum*.

"The disease shows itself," says the Delaware Bulletin 57, "on the main body or on the larger limbs, as, round to elongated, sunken areas, which are usually dark or black in color. These sunken areas are due to the death and dying-out of the inner bark. The bark adheres firmly to the underlying wood, but commonly in the latter stage of the malady, becomes cracked.

"The dead area is usually bounded by a crack, making a short line of demarcation with healthy wood. The dead bark may also show a number of cross fissures. These areas are self-limited, or at least extend slowly, but a number of adjacent areas may coalesce, so as to girdle the limb or main trunk, and thus kill the tree. Formerly this disease has been confounded with the ordinary pear blight, or fire-blight previously mentioned, but the two troubles are entirely distinct, both as to their character and cause. Fire-blight is more diffusely spread; in other words, it is a general blackening of the limbs, and does not appear in circumscribed areas on a limb or trunk. The tissues also do not shrink or show cracking

of the bark, which is so characteristic of this disease."

Nature attempts to form new healthy bark underneath, and if some exterior application were effective in destroying the old fungus, the disease might be cured, and for this the following formula is recommended: formaldehyde, 1 pint; glycerin, 2 pints; water, 17 pints.

PEAR BLIGHT.

THE cause and spread of this evil is no longer so mysterious as in former days. The Bulletin above quoted gives the following important particulars: The disease is caused by a minute germ or bacillus. This germ only needs to come in contact with a blossom or be introduced into the tissues of a leaf, young shoot or bud for the disease to manifest itself. From that point it extends slowly downwardly and inwardly.

One of the great sources of infection is observed in the spring, when blighted twigs are often seen to exude a milky looking substance. This latter is the pear blight virus in an almost pure state. If examined under the microscope it is found swarming with rod-shaped organisms or bacilli. From this, too, the organism can be isolated and grown upon artificial media, and from these pure cultures, blossoms, buds, twigs and leaves can be inoculated, and the trouble reproduced.

To show the relation of the milky virus exuding in the spring from blighted trees to spread of disease, a quantity of the latter was collected on April 25th, 1902, just at the time that the trees were coming into bloom. This was diluted with sterile water to make a turbid fluid, which the microscope showed was swarming with pear blight germs. By means of a camel-hair brush dipped in the diluted virus, a number of blossoms were touched in their centres and infested with germs. The blossoms so inoculated were then enclosed in bags.

Two weeks later all of the twigs which bore inoculated blossoms were blighted for a distance of four to eight inches, and bore black and shrivelled leaves.

One shoot whose blossoms were inoculated six weeks previously was blighted for the entire length of the shoot, a distance of fourteen inches, and was beginning to extend downward from these points.

It has been shown that bees and other insects are largely instrumental in disseminating the virus from one blossom to another; and while it would be impossible and unwise to banish the bees, even if we could, it is possible to remove much of the virus which they are so instrumental in carrying.

This will consist in a thorough inspection of the orchard in the spring before the blossoms open, and the cutting out and burning of all blighted limbs, branches and spurs. This will prevent, in a large measure, the wholesale infection of the blossoms, either on terminal growths or spurs, at which time nearly all the blight gets its start in the tree.

Again, if one will inspect a pear orchard any time during the months of May or June, one will observe a greater or less number of blighted terminal shoots and spurs. These represent blossom and perhaps bud infection as just noted. If these blighted parts be allowed to remain, the disease will extend and serious consequences will follow. If the terminal blighted shoots are cut out, the progress of the disease from these points can be stopped, provided care is taken to cut well below the blight and through the healthy wood.

When the spurs are affected, it is seen as clusters of dead leaves. These being short, it does not take long for the blight to extend from them down to the larger limbs. If not cut off on the first appearance of blight in them, the disease would have extended into the branch, where their excision would be useless.

Hence, soon after blossoming, the tree

should be watched carefully, and every evidence of blight removed as fast as it makes its appearance. Delay, especially as regards the excision of blighted spurs, is fatal. That is, it will necessitate the later removal of a large quantity of wood, even to limbs, which might otherwise be spared.

Most farmers practice pruning for blight, but they commonly do it whenever convenient, rather than at the right time, or perhaps not until the tree is badly involved.

Following the two spring prunings, the first before the buds are open, and the second during a period of a month following them, there should be a third inspection and pruning in the fall before the leaves drop, cutting out at this time any evidence of blight which may have escaped the previous operation.

THE GEORGIAN BAY APPLE HARVEST

MUCH FINE NO. 1 FRUIT—PRICES LOW.

THE apple harvest in the celebrated Georgian Bay district, says our friendly contemporary, the Sun, is now fairly under way.

The apple crop in the eastern end of that district is turning out better both in quality and quantity than expected. The color of the fruit is superb.

"Never before," said W. T. Pattullo, one of the large growers near Creemore, "were my Ben Davis as free from blemish, as well formed, and as highly colored as this year."

But it is not the Ben Davis alone that is well colored. The Ganos and Kings are also rich in coloring, Spys alone showing a little weak in this particular.

There is to be seen in the Pattullo orchard an illustration of how quickly results can be obtained from grafting. There are now perfect tops in Kings, Ontarios, and Spys, on trees which were worked over five years ago. Some of these new Spy tops will give a barrel of fruit this year, while Ontarios will do even better. Mr. Pattullo has a perfect

union in Spys on Astrachans, but he agrees with all other practical fruit-growers in saying that the Tallman Sweet affords the best possible stock to graft upon.

The importance of the apple-growing industry about Creemore is shown by the fact that a firm of dealers have this year put up a large apple storehouse in Creemore for the receiving of the fruit. The same firm have another storehouse in Winnipeg, and their expectation is to find in the West the principal outlet for the apples produced in this district.

Prices about Creemore, considering the excellent quality of the fruit, are running very low—75c. for fall, and \$1 for winter fruit, on the tree. The lion's share of the profit in this year's apple crop, in that section at all events, will go to the dealers.

"I have," said W. B. Sanders, President of the Georgian Bay Fruit-Growers' Association, in speaking of the keeping of apples for one's own use, "adopted this plan of keeping mine: I store in a cool outhouse until after several degrees of frost, and then lay singly on shelves in the cellar. I find fruit will keep in that way in perfect condition until well on in spring."

"And I," said D. Somerville, of Sunnidale, "have never had better success than with pitting. In pitting, I dig in a piece of sod ground to a depth of three feet or so, and put the apples in the opening. Above the apples, but about six inches below the surface, I put in a board covering so as to prevent the earth covering from pressing on the fruit. Then I cover with enough earth to exclude air and frost. I have had Spy, Ontario, and Russet apples come out of the pits so made in perfect condition after spring seeding was over. In fact, the fruit was as fresh as if just picked from the tree."

This year the keeping quality of apples, owing to favorable climatic conditions, should be particularly good.

THE McCABE ORCHARD, NEAR BRONTE.

ALTHOUGH the past summer was an exceedingly wet one, says the Sun, Mr. McCabe was able to have his trees thoroughly sprayed. The effect is clearly shown on almost every tree in the orchard. Spotting is as rare in his fruit as it is common in a great many other cases. Another indication of the healthfulness of the trees is found in the fact that four Baldwin grafts put on a Canada Red three years ago are bearing eighty apples this season. In fact, one Baldwin graft is bearing the first year after putting on. Mr. McCabe has followed the same plan as C. E. Secord, of the Niagara district, in planting Kieffer pears along the fence lines. Some of these Kieffers have several pears on this year, although they were not set out until 1901. The fruit part of the farm is not confined solely to apples. There are 1,800 plum trees, and the berry bushes cover eight acres.

MAY HAVE 3,000 BARRELS OF APPLES.

The bulk of the apple trees are Greenings and Baldwins. A short time ago Mr. McCabe thought he would do well if he secured 1,000 barrels of merchantable fruit. When he made this estimate the manager of the farm expressed the belief that the yield would come nearer 2,000 barrels. Now, when picking is actually under way, it will not be surprising if the total yield reaches 3,000 barrels. The quality of the fruit produced is indicated by the fact that Mr. McCabe has already had an offer of \$1.35 per barrel. This he has declined, however, as he is confident he can do very much better.

AN APPLE WAREHOUSE.

In order to make the most of his crop, he has approaching completion an apple warehouse 80 by 30 feet. In building this warehouse a trench for the walls was dug below the frost line. This trench was filled with field and lake stone to a little above the

level of the ground, and then a cement wall was carried six inches above this.

The floor of the whole structure was filled in with stone and finished with Portland cement. This floor slopes towards a driveway which runs the entire length of the building. In this way the work of cleaning is facilitated. On either side of the driveway are the apple bins, each bin holding three tiers of apples about three feet in thickness. The bottom floors of these bins are formed by laying joists (on edge) four to six inches above the level of the floor of the building. These joists are about an inch apart. In this way air circulates under the bins, up between the joists, and through the apples, which are piled above. The floors of the two upper tiers are formed in the same way as the floors of the bottom tier. In this way each bin contains, as stated, three tiers of apples, one above the other, with an open space between each, and the air circulating through the whole. In constructing the walls of the building Novelty siding is nailed to the studding, and tar paper placed over the siding. Then there is an air chamber, and next this air chamber is a lining of matched lumber covered with tar paper. Then there is a second air chamber of four inches, with tar paper and tongued and grooved lumber. Above the warehouse is a storeroom in which there is room for the storing of sixty tons of hay. This affords room for the storing of surplus hay, and at the same time prevents frost from penetrating from above.

WILL NEARLY PAY FOR ITSELF IN A YEAR.

"This building," said Mr. McCabe, "is costing \$1,200. It will afford room for storing 1,000 barrels of apples, and I expect that the extra price which I shall obtain later on for the apples which I shall be able to hold there will pay for the entire cost of the building in the first season. I am justified in this opinion by the fact that the best offer

I have received for my apples so far is \$1.35, while a dealer who has secured a considerable quantity of winter apples refused to sell out to me at \$2 per barrel. This dealer evidently expects that his fruit will be worth a good deal more than \$2 a little later on, and I believe it will, too."

While Mr. McCabe depends largely upon his cattle for the fertilizing of his orchard, he does not overlook the value of clover. In fact, there are few farms on which clover is so largely grown as on his place. Clover is to be found everywhere, and the invariable practice is to turn it down the second season. The quality of the grass on the place is shown by the fact that some steers which on the 28th of June averaged 753 pounds, averaged 916 pounds on the 21st of September.



FIG. 2464. AN ENGLISH MORELLO CHERRY TREE AT MCKINNON'S.

ENGLISH MORELLO CHERRY ON CLAY

THE best orchard of English Morello cherry trees we have seen in Ontario is owned by Mr. D. J. McKinnon, of Grimsby. The trees are five years planted on clay loam, well drained and well cultivated, and cut back to within two feet of the ground, so that the heads are formed very low and the fruit can all be picked while standing on the ground. The trees were bending down with an enormous load of beautiful dark red fruit on August 2nd, when we took the accompanying photograph, and it was estimated that they would yield an average of three baskets to a tree. "They pay," said Mr. McKinnon, "better than any trees on the place. Of course they have been well fertilized, and this may in part explain their great productiveness. I put a car load of wood ashes on that two acres of cherry trees last year, and now I am reaping the returns."

We have the same variety of cherry at "Maplehurst" on sandy loam, and although the trees were nearly as full of fruit, there was much greater tendency to rot, and all had to be gathered before the above-mentioned date. It is unfortunate that this cherry should be so often sold as Wragg, not a euphonious name, surely; this name was given it by a western nurseryman, who claimed that he had a variety quite distinct from English Morello, but nobody else seems able to see any difference.

FAIRLY GOOD REPORTS OF FRUIT EXPORTED TO GLASGOW.

WHEN the fruit growers of Ontario have learned to produce only fruit of the best quality, and never to allow inferior samples upon a tree to reach maturity, they will have learned the secret of success in fruit growing. Then we can ship with confidence to any market and expect reasonable results.

Every week since August 1st, when Astrachans began to ripen, we have kept up steady

and successive shipments of apples and pears, with varying success, but on the whole, with encouraging results.

With the exception of one lot to Manchester and one to Liverpool, all these have gone to Glasgow, and a recent mail has brought us the following report by John Brown, Inspector at Glasgow, which may be of interest :

EXTRACT.

(Marina Shipment).

The 953 C's shipped by L. Woolverton consisted of Wilson C's of pears and apples, $\frac{1}{2}$ C/s pears, 40 lb. boxes apples, 2 C's plums, 3 large Wilson C's peaches. The pears were packed in the $\frac{1}{2}$ C's in wood shavings with no paper on them; the variety was principally Bartlett. These showed up very well, although some were very ripe. The pears in the Wilson C's showed up well also, and the Duchess apples in Wilson C's were the best Duchess I have seen this season. The peaches were very wasty and only about a third of each case was fit for use. These were put up in special cases with no ventilation whatever, which I think had something to do with the condition they arrived in. They are, in any case, a dangerous fruit to ship. The two half cases Washington Plums were useless. The following are the prices :

Bartlett Pears in Wilson C's,	6/3	8/-
Duchess Apples do	5/-	6/-
Bartless Pears, $\frac{1}{2}$ C's.....	5/-	5/9
Apples, 40 lb. boxes	6/3	6/6

I have seen two of the largest buyers of the Bartlett pears, both of whom report : the pears they got went sleepy, and after 3 or 4 days were quite useless.

(Lakonia Shipment).

L. WOOLVERTON, PEARS AND APPLES.—The pears were packed in half cases in Excelsior packing, without being packed separately in paper. This packing was (for pears) rather coarse; something of a finer and softer nature would, I think, be more suitable and less likely to bruise the fruit. I also advocate the wrapping of each pear separately in paper, the same as the Californian pears, using the same kind of paper. Some of the pears were packed in Wilson cases. There was no paper on these either, with the result that a good many were bruised. The half case is going to be the most popular package here, as it relatively contains more fruit and is less expensive than the Wilson case. The latter would only pay with fruit of exceptional quality. The apples were packed in special cases holding about 40 lbs. of fruit. They were in layers with a great deal of Excelsior packing between each layer. This, I think, is quite unnecessary, a layer of Excelsior being sufficient, as buyers naturally prefer a box full of apples rather than two-thirds and one-third packing. Woolverton also sent a sample Wilson case of peaches and a sample case tomatoes. The former showed up well, each peach being wrapped up separately in paper and mostly in good order; the latter were a failure, the

tomatoes being soft and useless. The following are prices realized:

Bartlett Pears, $\frac{1}{2}$ C's, 3/9 7/8. Some ripe, others extra good.

Louise Bonne Pears, $\frac{1}{2}$ C's, 2/6 4/6. Green and good.

Flemish Beauty, $\frac{1}{2}$ C's, 3/ 3/6. Green and hard.

Duchess, $\frac{1}{2}$ C's, 4/3. Very good.

Bartletts, Wilson C's, 3/6 5/3. Wasty and irregular.

Apples, Wilson's C's, 3/9 7/3. Kings made highest price.

Peaches, Wilson C's, 6/3.

Tomatoes, Wilson C's, 2/ 2/3.

SUMMER TREATMENT OF SAN JOSE SCALE

ADVICE BY

MR. G. E. FISHER,

PROVINCIAL INSPECTOR.

THE cuts below clearly represent the importance of treating in summer trees which are badly infested with the San Jose Scale.

During the last week in August 1901, the tree at the left (1) was so affected that several limbs were already dead, and that at the right (2) not nearly so badly but had a good sprinkling of scale. At this date



FIG. 2465. BADLY INFESTED TREE, CURED BY TREATMENT.



FIG. 2466. SLIGHTLY INFESTED TREE, UNTREATED.

the dead branches were removed and the badly infested tree treated with twenty per cent. of crude petroleum and water, and the other tree left unsprayed.

The cuts show how the trees leafed out this spring. The treated tree blossomed and bore fruit this year, while the scale increased on the other during last fall and sucked the life out of two thirds of the top.

HINTS TO APPLE SHIPPERS

EARLY APPLES—CASES WITH FILLERS—DUCHESS
AND ASTRACHAN APPLES—TOP PRICES FOR
GRAVENSTEINS—PEACHES FOR EXPORT—HOW
TO PACK—STENCILS FOR NAMES OF VARIE-
TIES — DUCHESS APPLES, TEN SHILLINGS !

A LETTER FROM

A. McD. ALLAN,

WOLVERHAMPTON, ENGLAND.

WE are able now to speak with confidence upon the desirability of sending early kinds of our Canadian apples into British markets. We have had two shipments already this season and, generally speaking, results were satisfactory when all the conditions are considered.

As a rule these fruits are not known here, and the ordinary purchaser or the private citizen will ask for something known such as Baldwin, Spy, Russet, etc. But a taste of ours is enough to convince the worst sceptic of their superiority over home grown varieties or others. There is a mellowness, flavor and juice in ours that cannot be found in others in these markets, and by persistence, a free use of cold storage and careful selection and packing we are sure of a high and permanent place in British markets. While the Wilson case with drawers and fillers is much admired, I find it easier to sell the layer cases with apples in layers and divided by cardboard between layers, as these contain a larger average of fruit in proportion to the size of case, while the others are disappointing to buyers when the fruit is removed and weighed.

Of early kinds Oldenburg takes first place easily and buyers ask for more. Transparent is popular also and will always be in demand owing to its flavor and fine appearance.

Astrachan takes well when in good color and not over large; indeed the good medium sized apple finds more ready sale than the large, besides the Astrachan, when large, seems to lose flavor quickly, become mealy and crack.

Strawberry arrived well and is appreciated.

Pipka must have most careful handling and storage as it ripens quickly and gets off flavor and cracks in a few days. It should be picked when perfectly hard. Switzer carries fairly well and sells like several of its class when there are no Oldenburg on hand.

Titovka is much the same type as Pipka and must have "deep consideration" in picking and storage. It is a mistake to ship half-grown Alexander, as it presents the appearance of the boy who laments that he cannot be a man at once, and a full grown Alexander is too large to make money for the shipper as it has not the points of excellence to warrant a fancy price. Maiden's Blush will stay mostly on account of fine appearance and regularity of size and form.

Fameuse should not be sent over so early as it lacks size and color, but later on will be in strong demand at fancy prices for a well put up sample.

St. Lawrence is without doubt wanted here and will be enquired for by all who have had the good fortune to test its fruity flavor. Besides these mentioned we have had a few

others such as King, which is always popular, and Cabashea also. Gravenstein needs no mention for popularity and when in good color makes the top price. We had a case of apples named Brockville Beauty, highly colored but very small. It may be some of the children of that variety, but my recollection is of a large fruit more of the Fallawater size and form.

Peaches did not arrive in order, but why? I observed the only few specimens discernable were Garfields, which were loosely packed in tissue only, and one kind not named from Mr. Woolverton, where tissue was only used in a few specimens. In the whole there was one perfect specimen and that was not wrapped at all. Evidently the double wrapping is not suitable for peaches, nor do I think desirable in any fruit. Whatever the packing may be it should allow a perfect circulation of air around the fruit itself. Samples in the Wilson case fillers were good, but unless each filled its compartment closely, the moving tends to bruise any soft fruit.

The first shipment came in cold storage and was perfect, excepting peaches and soft pears. The second lot was not in cold storage and all peaches, pears and plums were rotten, and the softer kinds of apples wasty and unfit for market.

My own judgment is that a compartment, supplied with cool dry air by a fan, would be more serviceable for fruits than the cold storage as it is often supplied. Possibly if the matter were followed out we would find that the cold chamber is not held at an even temperature during the voyage, or it may be held at too low a temperature. This matter requires looking carefully after. I believe 43 to 45 would be cool enough for soft fruits and certainly if the temperature goes under 40 evil will ensue.

But to return to the staple fruit, it pays better to ship an apple that combines eating and cooking uses than simply one, medium

size, even samples of good form and generally attractive. To get a high price both the eye and palate must be tickled.

It is better not to try and impress the markets with the large number of varieties we have by sending shipments mixed with many kinds. More money is made by a few choice kinds and consumers are not mystified as to what to buy. It is a mistake to pack with fresh excelsior as it heats when not in cold storage, and generally too much of it is used. If properly seasoned or kiln dried it is one of the best materials we have for the purpose, and when apples are wrapped solidly in cases a very slight scattering of excelsior between layers is useful. Even when it is used without wrapping samples, much less will suffice than I observe shippers using. The Russians use straw when packing apples for winter use. Long single stalks are placed under each layer above and along the sides all through the package so that samples are separated by a few straws on all sides, and some claim this system is perfect although tedious. For those who have the time and patience it may be worth trying.

It would be a great convenience if shippers would use stencils to mark the name of kind and shipper's name on each package, as labels are so easily torn off in transit.

We are not receiving fruit enough to go into the markets and make a perfect test of what can be done in prices, as much of it is used in keeping the exhibition tables attractive. But the small surplus we get is readily sold at 8 shillings for the large cases and 5 shillings to 6 shillings for the small where the fruit is in good order. I did sell some fine Oldenburgs at 10 shillings and the dealers in selling by the pound charged 8 pence. Consumers readily, however, pay from 4 pence to 6 pence per pound.

Freights are too high and pressure should be brought to get a much better scale of rates from forwarding companies. I believe fruit pays the highest average freight of any

of the products of the farm. Why is this? I can only think it is because shippers are generally good natured enough to pay it. We are long suffering or have been so, let us kick.

I met a gentleman a few days ago who asked me if we had the new tin can for fruits

and vegetables that needs no solder. Perhaps our canners know all about it, but in case it may be of use to them full information can be obtained from "The Self Opening Tin Box Company, York Road, King's Cross, London," who use the Muncham patent closing machine.

APPLES IN THE GEORGIAN BAY DISTRICT

BY

T. H. RACE, MITCHELL

IT was my privilege this fall to visit some of the districts bordering on the Georgian Bay and note the apples and other fruits out there, in comparison with other sections lying further south. It was the second time that I had acted as judge of the fruit exhibits at the Orillia fall fair, and on neither occasion were the expectations of nine years ago, when we held our annual meeting in that pretty town, borne out.

It will be remembered by many of those who met at Orillia that fall nine years ago what a splendid showing of apples there were. That seemed to be a favoured season with them, and we were all most favorably impressed with very superior quality of the apples produced and shown there. From later visits I have satisfied myself that such varieties as the Baldwin, the Spy, King, Greening and some of the pippins will not do well in the Orillia district. The Ben Davis will do fairly well on the ridges round about the lakes, but I doubt its being generally successful. The Duchess, Wealthy and Alexander are still promising varieties there; but the apple that I found especially at home in that district was the North Star. In no other section where I came across the North Star did it appear to thrive as well and

attain as high a quality and good size as about Orillia.

In my opinion the North Star is very little inferior in quality to the Gravenstein. Mr. D. Cantelon, of Clinton, the Huron fruit king, who grows it largely, thinks it superior in quality to the Gravenstein. And it is free from spot, a better grower, a longer keeper and uniformly larger in size than that variety. All things considered I believe the North Star a coming apple for the late fall or early winter market, and especially valuable for the Orillia district.

But I found another apple at Orillia which I consider worthy of special mention. It is evidently a seedling from the Duchess, and resembles that variety in all its essential features except in its season. It is a Duchess apple moved on about six weeks in its season. Our director, (Mr. C. L. Stephens), for that district will have some specimens of it at the Walkerton meeting. If the Duchess ever becomes, as it promises to, a marketable apple up through New Ontario, and as far west as Winnipeg, this seedling will be a valuable addition to prolong that market to well nigh early winter.

Still another good seedling I found at Orillia grown by our director Mr. Stephens

which might be an offspring of the old Primate, but later in season than that old variety. It does not however promise to fill a place in the market like the other spoken of above.

Coming on to Collingwood I found a very fine exhibit of fruit there. Whatever the climatic differences between that section bordering on the Georgian Bay and Orillia, a few miles inland, the differences in the fruit is very marked. At Collingwood I found the Spy, Baldwin, King, Greening and all the standard varieties quite up to the mark. Ben Davis, Snow, Wealthy, and Blenheim Pippin were equally good; but

Alexander and North Star were not up to the Orillia standard. Here for the first time I found a special prize offered for the best barrel of winter apples, and several competitors entered, the varieties being mostly Spies, Kings and Baldwins. It was a good object lesson and might well be imitated by other fall fair managers. The only defect was that the public were excluded while the judging was going on. This is a mistake in connection with all fruit judging.

I will have something to say about the cedars and other native ornamental trees at Orillia next month.

A STUDY IN FRUIT BLOSSOMS

BY

PROF. H. L. HUTT, B. S. A.,

ONTARIO AGRICULTURAL COLLEGE, GUELPH.

A TREE in full bloom is an interesting study, not only because of its beauty, but because of the promise it makes of bearing fruit. We can all enjoy its beauty; the fruit-grower appreciates the promise of fruit; but in the tree economy, the blossoming and bearing of fruit are only means to an end,—the ripening of seed for the perpetuation of

the species is the ultimate aim of the tree in blossoming.

THE STRUCTURE OF A FLOWER

If we examine an apple blossom, or that of most any of our fruits, we will see that it is made up of a number of parts. These may be grouped into two sets: those on the outside are the floral envelopes, made up of the calyx and corolla; and those in the centre are the sexual, or reproductive organs, the stamens and pistils. Let us examine each of these parts separately.

The *calyx* is the outer whorl of the floral envelopes, and is usually of a green color. Its parts are called sepals, and when united by their edges, they form the calyx-tube. The free ends are called the lobes of the calyx. It is the remains of these that may be seen at the top of the fruit in the gooseberry, apple or pear.

The *corolla* is the showy colored part of



FIG. 2467. APPLE BUDS AND BLOSSOMS.



FIG. 2468. SEMI-DOUBLE BLOSSOMS OF CRAB APPLES, SHOWING PART OF THE STAMENS TRANSFORMED INTO PETALS.

the flower, and is situated within the calyx-tube. Its parts are called petals. The showy color of the petals helps to attract insects to the nectaries in the centre of the flower, and in this way indirectly helps to bring about fertilization.

The *stamens* are the male organs of the plant and are situated just within the circle of the corolla. Each stamen is made up of a thread-like filament, on top of which is the anther. The anthers contain the pollen, a yellow substance, which is discharged when the anther becomes mature, and being dry and powdery it is easily carried about by winds or insects.

The *pistil* is the female organ of the plant, and is situated in the centre of the flower. It is made up of three parts: the *ovary* at the base, which contains the ovules or rudimentary seeds; the *style*, an elongated tube leading down to the ovary and the *stigma*,

a roughened enlargement on the top of the style, which receives the pollen from the stamens. The pistil is one of the tenderest parts of the flower, and is often injured when late frosts occur in the spring. The injury from such frosts may not be seen at all upon the other parts of the flower, but the injured pistil turns black, and consequently does not develop fruit.

HOW DOUBLE FLOWERS ARE FORMED

In a perfect single flower, all of the parts above named are present; and, upon examination, it will be found that there is a regular symmetry in the number of parts. In an apple blossom for instance, we will find five sepals, five petals, a five-celled ovary, and while there is more than five stamens, it will be found that there is usually some multiple of five. The double flowers, which we admire so much in roses and many other ornamental plants, are brought about by the conversion of the stamens into petals. In most cases, this doubling is only partial, that is, only a part of the stamens develop into petals; but in some cases, not only the stamens, but pistils also are transformed. Flowers which are completely double cannot, of course, develop seed.



FIG 2469. PISTILLATE STRAWBERRY BLOSSOMS.



FIG. 2470. THE BISEXUAL STRAWBERRY BLOSSOMS.

SEXUAL DISTINCTIONS IN PLANTS

The parts of the flower essential to fruitfulness are the stamens and pistils, and while most of our fruit trees are hemaphrodite, that is, having the stamens and pistils present in the same flower, yet there are many exceptions to this rule, in other kinds of trees and plants. In the oak, hickory, chestnut, corn, pumpkin, ragweed, or begonia, two kinds of flowers may be found

upon the same plant, the one having pistils only, the other stamens only. Such plants are said to be *Monœcious*.

In maples, pines, and willows, it will be found that the essential organs are more widely separated, for the stamen and pistil are not only on separate flowers, but on separate trees. Such trees are said to be *Diœcious*.

Many varieties of strawberries show a peculiarity in this respect which calls for a word of explanation. The strawberry as a rule, is hemaphrodite, or bi-sexual, that is, having stamens and pistils present in the same blossom; but there are many varieties, such as, the Crescent, Haverland, and Warfield, in which the stamens are very rudimentary, or entirely lacking. Such varieties are called pistillate. To make them fruitful, they must of course be grown alongside of bi-sexual or perfect flowering varieties, whose stamens furnish the pollen for fertilization. To speak of the latter, however, as staminate varieties, as is often done is incorrect, for a staminate flower is one in which there are stamens and no pistil, which never occurs in any of the strawberries.

THE RIVERS PEACH

SIR,—I always find something of interest in the Canadian Horticulturist. I agree with what is said in the October issue in regard to Alexander, Hale and Triumph peaches, but I cannot quite agree with what is said about Rivers Early peach. Specimens of Rivers peach grown near our place this past season were as large as Elberta, were almost white, with red cheek, and did not cling severely to the stone. These peaches were delicious, being exceedingly juicy, and I said to myself, if the Rivers everywhere is as good as this, it is a marvellous peach. The grower of these

Rivers peaches said that it was hardy in bud, bearing regularly every year, and he sold the fruit in the Rochester market at remarkably high prices, since it had no competitor. I have been told that this variety was too tender for long shipment, but this is no serious objection to many people who grow for nearby market. I am anxious to get information in regard to the Rivers peach, and how it succeeds in various parts of this country.

CHAS. A. GREEN.

NOTE BY EDITOR—Unless overloaded, the Rivers Peach is all that is claimed for it by Mr. Green. Our chief objection to it is its tender flesh, making it a poor shipper, and it is little desired for canning.

CONTRASTS IN METHODS OF APPLE CULTURE

BY

W. T. MACOUN,

CENTRAL EXPERIMENTAL FARM, OTTAWA, CANADA.

DURING the early part of September the writer had the opportunity of visiting the Hamilton and Grimsby districts, and of inspecting some of the large apple orchards there, and almost immediately afterwards of travelling more than 350 miles east to Montreal and vicinity, and examining large orchards there also. The contrast in methods was very marked, yet as good fruit was seen at one place as at the other. In the West, clean culture, heavy pruning and thorough spraying resulted in good fruit. In the East there was good fruit where the orchard was sod, the trees lightly pruned, but thoroughly sprayed. Spraying with Bordeaux mixture is necessary everywhere, but methods of pruning and soil culture must be governed by climate. In the West the soil is cultivated principally to conserve moisture. In the East, especially in the Ottawa Valley, this is not usually necessary, as there is sufficient moisture to ensure a thrifty growth and well developed fruit. In the West, severe pruning invigorates the tree, the result being larger fruit. In the East, there is danger of sunscald from severe pruning, though light pruning is necessary.

In Eastern Ontario and the Province of Quebec protection for the roots in winter is, in the writer's opinion, necessary, and as a rule more important than conservation of moisture. A young, bearing orchard may be ruined by winter-killing if the roots are not protected by grass, sod or some cover

crop. There is no better system of cultivation known for Western Ontario than clean culture in spring and early summer, followed by a cover crop for winter protection and for adding humus to the soil. It is doubtful, however, if this system should be recommended for all sections. The writer believes that after the young trees are established best results will be obtained, where the trees do not suffer from drought and where the soil is good, by keeping the orchard in grass or clover all the year round, and mulching the ground with the grass or clover, which should be cut several times during the season. The soil may be top-dressed with manure or other fertilizers as often as is found necessary to maintain its fertility. There is much more likely to be immature wood where the clean culture and cover crop system is adopted than where the trees are in sod, and well ripened wood is very essential in Eastern Ontario and the Province of Quebec.

In the American Agricultural and Horticultural periodicals there has been much discussion for a year or more over the splendid results obtained by Mr. Grant G. Hitchings, Onondaga, N. Y., in growing his apple trees in sod and mulching with the cut grass. The fine results obtained by this gentleman have fully justified the discussions on his methods, but it is unfortunate that more prominence has not been given to the special conditions of soil moisture which

are said to exist at his place, making apparently an unfair comparison with the general conditions in that part of New York State, which are such as require clean culture, to conserve moisture. Mr. Hitchings' results, however, prove that where there is abundant moisture, as in many parts of Eastern Ontario and Quebec, his method may be adopted

with good success. At the Central Experimental Farm it has been found that growing clover in the orchards and mulching with it has resulted in a thrifty growth and better fruit, and the writer has seen many orchards in sod producing fine fruit. Every orchardist must, however, study his own conditions, especially those of moisture and soil.

A STATEMENT OF THE QUANTITY AND VALUE OF FRUIT IMPORTED AND ENTERED FOR CONSUMPTION DURING THE FISCAL YEAR ENDING JUNE 30, 1902.

DUTIABLE.		
Dried Apples.....lbs.	78,717	\$ 5,310
" Currants	7,294,816	298,278
" Dates	1,463,020	31,772
" Figs.....	3,618,073	87,959
" Prunes	5,299,799	181,006
" Raisins	11,644,657	551,876
" All other	1,810,185	132,138
Nuts, Almonds	1,062,039	118,377
" Brazils	78,050	6,202
" Pecans	583,936	35,973
" Walnuts	1,107,423	79,022
" All other	3,954,311	190,280
Green Apples.....bbls.	21,425	85,252
" Blackberries and Gooseberries....		
" Raspberries and Strawberries....lbs.	1,064,251	94,139
" Cherries.....	117,574	11,310
" Cranberries.....bush.	26,839	52,487
" Currants	238	15
" Grapes (includes Malagas).....	1,207,901	69,951
" Oranges and Lemons, boxes of 2½ cubit feet.....	462,137	1,011,566
" Oranges and Lemons, ½ boxes	51,052	63,367
" Oranges and Lemons, cubit feet	240,884	143,966
" Oranges and Lemons, No.....	9,115	115
" Oranges and Lemons, barrels.....	17,991	46,466

Green Peaches.....lbs.	3,558,358	91,839
" Plums.....bush.	32,200	39,057
" Quinces	271	357
" Other		60,468
Preserved, in air tight cans, .....lbs.	1,605,053	87,904
Preserved, in spirits...gals.	360	1,105

TREES—		
Bananas.....bunches	765,767	738,168
Pine Apples, No.....	1,095,949	87,929
Guanas, Mangos, Pomegranates and Shaddocks		6,698
Wild Strawberries, Blue and Raspberries		812

EXPORTED—		
Green Apples.....bbls.	516,215	1,566,808
Dried ".....lbs.	1,685,460	102,203
Berries		84,010
" Canned		142,972
Other Fruit		26,311

\$1,922 304

I beg to send you these figures for Horticulturist. They are very instructive perhaps, and comparison with ten years ago would be interesting.

Ottawa.

G. H. FAWCETT.

A WARNING TO FARMERS AGAINST TRAP LANTERNS

CATCH FRIENDS AS WELL AS ENEMIES

BY

W. H. COARD, LL. D.

DEPARTMENT OF AGRICULTURE, OTTAWA

TRAP-LANTERNS, as destroyers of insect pests, have been recently much discussed in the northern and western portions of Canada as well as in the United States, and by the most persistent and unscrupulous advertising a certain "moth catcher" has been forced into undue prominence, so that fruit growers and farmers have been induced to buy in spite of the protest of those who have thoroughly and scientifically tested such devices. So important has this matter become that the Entomological Division of Cornell University has issued the result of experiments carried out with trap-lanterns during three years, containing in substance the following points:

Many kinds of insects are most active at night and are then often attracted to any light, but there are hosts of insects that fly mostly in the daytime. Most of the grasshoppers, many of the true bugs (like the squash stink bug), all of the butterflies (like the very destructive cabbage butterfly), many of the moths (like the peach tree borer moth), many of the beetles (like the Colorado potato beetle), most of the flies (like the house fly), and many of the hymenoptera (like the saw flies), are day fliers or are not attracted to lights, and these include a large proportion of our common insect pests.

While a trap lantern or "moth catcher" may attract and kill ten or twenty thousand insects in a season, most of the household pests, most of the fruit growers' insect enemies, and nearly all the serious pests of

the gardener or grower of general field crops will fail to be trapped. Only winged adult insects are caught, the more destructive nymphs and larvae are never taken. Usually moths will constitute about half of the insects caught in trap lanterns, and most of these are not pests, only ten per cent. of those that are injurious are females, and these have nearly all laid their eggs. Often as many friends as foes among the beetles will be taken. Nearly one-third of all the insects caught in three months in two "moth catchers," run in Canada, were beneficial, and nearly as many friends as foes were caught in the trap-lanterns. As one of these parasitic insects' friends is capable of killing several injurious insects; the prospect of capturing so many beneficial insects become a serious factor in considering the advisability of using trap-lanterns. It is not so much a question of how many insects as of what kind of insects will be captured.

Experience shows an orchardist or a grower of small fruits has no use for a trap-lantern or a "moth-catcher," because they will not catch enough of the more injurious fruit pests to pay one-tenth of the trouble and expense of running them. Tent-caterpillar moths are the only common fruit insects that are caught in economic numbers, and nine-tenths of these will be males. Codling-moths are not attracted by lights, and only rarely one accidentally falls a victim. The highest record in the Cornell experi-

ments thus far has been eight codling-moths in fifteen nights. The wingless female canker worm moths will not crawl into "moth-catchers," and the lights do not attract the two kinds of apple-borer beetles, the peach-borer moth, plum curculio, or the saw-fly of the currant-worm or pear slug.

As trap-lanterns can have no effect upon fungous diseases, they can never take the place of the spray pump and Bordeaux mixture. Experience has shown that several trap-lanterns set very near every tree in an orchard will not noticeably reduce the crop of wormy apples, or diminish the number of hungry caterpillars feeding on the buds and leaves.

There are instances in which trap-lanterns

may prove useful, such as where some light-loving insects becomes a pest in green-houses, or in the case of some local pest whose period of flight is sharply defined and of short duration. But no one has yet conclusively demonstrated that any insect pest can not be much more effectively and cheaply combated in some other way than by the use of "moth-catchers" or trap-lanterns.

The outcome of all the experiments made everywhere renders it doubtful if these aids help enough in our insect warfare to pay for the trouble and expense of using them, while they certainly do not warrant anyone in recommending their use, or even passively permitting it without protest.

APPLE SCAB FUNGUS

IS ONE OF THE MOST DESTRUCTIVE
PESTS THAT COMES INTO ORCHARDS

VERY few, except scientists, recognize that apple scab is one of the most destructive pests that comes into the orchard of the apple-grower. The codling moth is supposed to be far more destructive, but such is not the case. Great precautions are taken against the said moth, but little or none against the apple scab fungus. When a picker takes an apple from a limb and finds a scab on it, he gives it not another thought, for that is apparently only a blemish. He imagines that he sees on the apple all the result there is, and he considers it not worth investigating. In fact, this scab does most of its damage to the foliage, and what appears on the apples is merely its secondary work. By the work of this fungus the entire tree is weakened, and the apple crop is cut short year after year. In addition to the fruit being smaller than it should be, the apples fall early, as the tree is too much weakened to nourish

them sufficiently to induce them to hang on. It seems that an apple hangs on just as long as it is receiving nourishment. When nourishment is cut off the apple automatically detaches itself and falls. Anything that causes a check to this supply of nourishment leads to the fall of the apple. The apple scab fungus, by sapping the strength of the tree, brings about this result. Another indication of the presence of the fungus is the fall of the leaves before their natural time. This is brought about in the same way as is the fall of the apple. The nourishment ceases going to the leaves and the stem begins to detach itself from the tree. Thus long before the other trees have dropped their leaves the tree that is badly affected by the fungus named is bare.

When a tree is badly affected it takes more than one year to bring it back to a normal condition of fruitfulness. Thus, if a tree has the disease this year, the crop

next year is sure to be small, for the reason that fruit buds are formed more than a year ahead of the time of their fruitfulness. If the tree is scabby this year the buds will be poorly developed or not developed at all.

No matter how good its condition next year, it will not, in a single season, develop buds and bear fruits on those buds. Spraying is the only remedy, and that must be continued for a number of years.—*Farmers' Review*.

THE FALLING OF GOOSEBERRIES

BY

R. CAMERON

NIAGARA FALLS SOUTH

WITH others I am pleased to note the willingness of Mr. S. Spillet to give and receive information on gooseberry culture; and therefore I will give my view of the subject. I attribute the falling to the drouth and heat, coupled with over luxuriant growth of suckers. If a bush produces from one hundred to one hundred and fifty suckers, as Mr. Spillet says they do, I think such cases most extraordinary and I would dig out and burn such bushes, and begin afresh. If the cuttings are made properly they should not produce suckers at all. All the buds, in that portion of the cutting which is supposed to go under ground, should be cut off and only three or four buds near the top should be left to form branches from which branchlets will grow, until the desired number is secured. All the rest should be cut off when pruning. It is not necessary to prune the bushes more than once a year, viz., about the middle of March. If the bushes are trimmed on the spur system, allowing the light and air to pass freely through the plants, the foliage will be healthier, will produce more substance and the plants will be more vigorous—two powerful factors in preventing mildew and the ravages of caterpillars. By this method the weight of fruit will not be less than in the way generally adopted, the berries will be much larger in size, and there will be no drop to the fruit before it is matured. Here I may say that if mildew does show, which seldom happens when the bushes are grown

in this manner, especially if upon clay or clay loam, I would have some fresh slacked lime thrown over and through the bushes, whitening the soil under the plants; this will be found to prevent the ravages of the caterpillars as well as to prevent the mildew. I have grown the English varieties of the gooseberry in this way to five and one half inches in circumference. The English gooseberries will never be grown successfully in this country, particularly upon light soils, and those varieties that will give any satisfactory returns will be found to be the thick skinned ones, such as White Smith, Industry, Crown Bob, Warrington, etc. The clay soil bakes on the surface, and quickly dries down to the roots of the plants if not stirred frequently, and this dryness will cause the fruit to drop; but in such cases, if the surface of the soil under the bushes be covered with coal ashes or a similar material, it will keep the surface open and moist so that the heat and air will pass freely through the soil, a very essential factor for the well being of any plant, and particularly of the gooseberry, which must have its roots kept cool and moist.

The gooseberry is a gross feeder, and thrives best by being fed with a bountiful supply of barn-yard manure water; mulching the plants with ashes, as stated above, will permit the soil to receive the liquid manure freely and save stirring the soil, in after feeding or after rains, to prevent baking.



THE LITTLE GARDENERS OF HAMILTON

SPLENDID WORK BY THE SPECTATOR UNDER AUSPICES HAMILTON HORTICULTURAL AND CITY IMPROVEMENT SOCIETY—PRIZES GIVEN OCTOBER NINTH—GREAT ENTHUSIASM—THE CITY BEAUTIFIED.

THE flower garden competition inaugurated by the Spectator Printing Company and managed by the City Improvement and Horticultural societies, was brought to a most successful ending last night, when, in the presence of an immense audience gathered in the city hall council chamber, the awards were made, along with those in the Improvement socie-

ty's window box competition. It was the most successful annual gathering ever held by the Improvement society, and throughout the proceedings were of a most pleasant character. The prize winners were numerous, and particularly in the case of the children who won Spectator awards the applause, as the little tots came forward to get their money, was most generous.

The Spectator competition for flower gardens was in two sections—one for children, in which the city was divided into four districts, and three cash prizes were given in each to girls and three to boys having the best gardens designed and cared for by themselves. Added to these were several merit awards of seeds and bulbs to those who did not succeed in winning any of the cash. The second division was an adult competition, in which four cash prizes were given for the best gardens* in the whole city. The total amount donated in this way was



FIG. 2471. A STREET CAR USED AS A SUMMER HOUSE, MAIN ST., HAMILTON.

NOTE.—Some photographs in illustration, too late for this number, will appear next month.—ED.



FIG. 2472. GARDEN OF R. S. ANDERSON, HAMILTON.

\$125. The society's window box competition was also a cash prize affair, the total being \$60, and the city being divided as in the Spectator's children's competition. The society also gave a special prize of \$25 to the ward foreman for the best kept city ward.

R. T. Steele, president of the Improvement Society, was in the chair at last night's meeting, and with him on the platform were Mayor Hendrie, ex-Mayor Teetzel, Adam Brown, Rev. Canon Forneret and Newton D. Galbreath, secretary of the society. The council chamber had been most beautifully decorated during the day by members of the society and their friends, and the large audience appreciated the effort that had been made to have all things in keeping for

the occasion. In opening the meeting Mr. Steele made a brief address. He said :

It is only a short time ago since a little meeting was held in this place to see what could be done to beautify our city. The audience to-night shows that many of you are taking an interest in this forward movement, which is making great strides in the United States. Much of the good work being done in places has been due to the ladies. We intend to enlist the ladies in this work before our next season's campaign opens. At our last meeting it was decided to continue the floral competition as previously, and in this we had splendid assistance. The Evans Seed company offered prizes for asters and the Spectator Printing



FIG. 2473. GARDEN AT BOWBROOK, RESIDENCE OF ADAM BROWN, HAMILTON.

company generously donated prizes for competitions among the children of the city. Then the society offered prizes for window boxes, and it was perfectly wonderful the number shown through the city during the season. It kept the box manufacturers and the florists busy supplying the demands. All this sort of thing is having its effect upon the children, leading them to a higher and better civilisation. In connection with our work, while we have much to be thankful for, there are some things that have not suited us. Strangely enough, it was from those from whom we expected most support that we got least. The churches and schools showed practically no improvement.

Mr. Steele reviewed the work of the society during the year with the City council. He spoke of the collection of garbage, the gathering of waste paper, the caring of shade trees, the repairing of roadways, the snow cleaning by-law and the weed cutting

regulations. Speaking of the dog nuisance, he thought if the present by-law was carried out strictly it would suit the public generally. He knew of many citizens whose gardens were ruined early in the season by dogs. He also wished that the white wings brigade could be again dressed in white.

Newton D. Galbreath took charge of the prize distribution, and at the outset, explained the system of dividing the city into four districts for the purposes of the Spectator Printing Company competition among children—\$100 in cash and \$25 in bulbs and seeds.

Mayor Hendrie, who took Mrs. Hendrie's place in distributing the Spectator's prizes, apologised for her absence, it being impossible for her to reach the city in time to perform the pleasant task. He thanked the ladies of the Improvement society for the beautiful way in which they had decorated the council chamber. The giving out of



FIG. 2474. GARDEN OF ADAM BROWN, BOWBROOK, HAMILTON.

these awards, was, he said, a particular pleasure to him, for he felt sure that the children, who had thus started out in the right way, would make the members of the Improvement society in future years. The mayor then handed out the prizes to the girls in the Spectator competition, the winners being heartily applauded as they came forward.

Rev. Canon Forneret handed out the prizes to boys in the Spectator contest, and prefaced his pleasant task by some timely remarks. He advised the young people to put their money in the bank or else use it in improving their gardens.

The making of beautiful gardens was the positive side of city improvement. He wanted the children to remember that there was another side. If they would be careful

not to litter paper, peanut shells, etc., on the streets they would be doing a great work also. He then handed out the prizes, the winners being heartily applauded as they came forward.

Adam Brown handed out the prizes in the adult competition promised by the Spectator Printing Company. Mr. Brown was pleased to see so large an audience. It was a great satisfaction to the two promoters of the City Improvement society—the irrepressible and the indefatigable—Mr. Steele was the irrepressible and Mr. Galbreath the indefatigable, and they both deserved all praise for the work they had done in making the wilderness blossom as the rose. In a short speech Mr. Brown impressed upon the audience the great value of the inculcation of a love of flowers among the children of

the city, quoting from Edward Owen Green, the great leader of the flower culture movement in England, as follows :

“Our eyes, our ears, our senses of touch and scent are so many avenues by which various faculties of the mind are reached, exercised and developed. A good and capable teacher recognises this, and works largely by what are called object lessons. Place a child in a garden, amid the perfume and beauty of flowers, the songs of birds, and ripple of running water, the successive development of leaf and bud, and flower and fruit, and you enforce the exercise of his best mental powers by a sweet compulsion of which he is almost unconscious. And what is true of a child is true of the grown man and woman, though the effects of the silent teaching may not be so rapid as the growing child.

“So I come to my moral and my message.

“I say to the teacher of childhood, whether you be father or mother, or other of nature’s monitors, or whether you be one who has taken as a profession the highest of all callings—I say to you—give the children, if you can, a bit of garden ground, or failing that, a few plants in pots or window box to tend. Associate yourself with their work of flower culture. Teach them to do the best for their floral friends, and tell them all you know yourself of the mysteries of plant life. You will find health and growth of mind in your little ones flowing happily from their garden work.”

Flowers were not only a pleasure to those who cultivate them, but were a blessing to the sick and afflicted in hospitals and sick rooms. Those who encourage their children in a love for flowers will not have much cause for worry about them in after years. -



FIG. 2475. J. M. HALL'S GARDEN, HANNAH STREET, HAMILTON.

FLORAL NOTES FOR NOVEMBER

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH, ONT.

FLOWER GARDEN.—If the weather is sufficiently open and no hard frosts prevail, this will be found the most suitable time for making new walks, flower beds or borders, as the winter rains and snow will assist greatly in settling the soil down before spring operations commence. Some planting of the hardier varieties of border plants can also be done to advantage. German Iris, Pæonies, Hemerocallis or Lemon lily, Dielytras or Bleeding Heart, as well as Lily of the Valley, are varieties that succeed well if planted late in the autumn. If left until spring, they are often overlooked and forgotten until it is too late for them to take root and give flowering results the same season. It may be advisable, however, to give these late planted varieties a mulching of leaves or long strawy manure later on, before very severe weather sets in. The Iris would probably be better without being covered up or mulched, as mulching is liable to damage and smother the growth, Fibrous

rooted varieties of hardy border plants, such as Gaillardias, Phlox paniculata, Coreopsis, Rudbeckias, etc., succeed better transplanted in early spring.

BULBS

Most varieties of spring flowering bulbs, such as Tulips, Crocuses, Snowdrops, Scillas, Chionodoxas, as well as the Daffodil Narcissus, require very little, if any, covering during winter, excepting in very cold localities, or when the bulbs were planted very late in the season. A light mulching of long strawy manure would be beneficial to these latter if applied before severe weather sets in. Hyacinths, however, in almost all localities, are greatly benefited during severe winters by having a mulching of long strawy manure four or five inches deep spread over the ground where the bulbs are planted. Three or four inches of leaves with a light covering of long grass or manure, or even pine boughs or brush to keep the leaves in place, make a splendid protection for bulbs in winter, and is often easier to be obtained than long manure.

ROSES

Budded plants of even the hardier varieties of out-door roses are better if given some extra covering during winter. Banking the soil up in a conical form about a foot in height around the plant will afford great protection to out-door roses in winter. A mulching of strawy manure or leaves in addition to this would also be beneficial. In localities where the temperature is often for a long period below zero, some extra protection even to this would be advisable. Long straw, an inch or two in thickness,



FIG. 2476. GLOXINIA GRASSIFOLIA.

bound around the tops, would be a benefit where extreme cold prevails, and where, perhaps, the snow fall is light or uncertain. The rush matting used for covering tea chests, wrapped several times around the plant, makes a splendid winter covering for roses or any tender plants, as it to a great extent, excludes moisture, and still allows a circulation of air to the plant sufficient to prevent rot and mildew—the latter often occurring when plants are covered up too closely so as to admit no air at all to the plant.

Roses on their own roots are hardier than budded or grafted plants. Even these would benefit by some protection around about the base of the stem and over the roots, even if the growth was not altogether covered. It is best in all cases, however, to leave the mulching or covering of plants until late in the season, when severe weather is likely to set in, so as to allow the growth of the plant to harden off in a natural way fully exposed to the air.

A very essential point in protecting plants in the manner described is to so arrange the covering, whatever it is, so that it excludes as much moisture from the growth as possible. An old flour or sugar barrel minus the lid, turned bottom up over a tender rose or shrub, is a good protection. Holes should be bored around the sides to admit air, but the top of the barrel, when turned up, should be water tight and intact. Some straw or leaves placed or tied around the plant before it is covered with the barrel would be beneficial.

WINDOW PLANTS

The advent of colder weather means increased fire heat, the latter also meaning an increased aridity or dryness of the atmosphere. The latter condition will probably induce a visit from insect pests, unless precautions are taken to prevent their appearance. Green fly and red spider are most to

be feared, especially the latter, as their appearance is not as easily detected as that of the aphid or green fly. Copious sprinkling and syringing with cold water is the best preventive for the attacks of the so-called red spider. Salvias, Fuchsias, Roses and Carnations are first favorites with this little pest. When first attacked, the leaves of these plants present a whitish, dusty-looking appearance, especially on the underneath side, and the leaves will soon commence dropping unless the plants are regularly and thoroughly sprinkled or syringed once or twice every day. Tobacco water, as recommended in the September number is the best remedy for green fly, although tobacco leaf or stems, or even a cigar thoroughly dried and rubbed into a fine powder and sprinkled on the plants infested with green fly will generally rid the plant of them. The latter application is best made after the plants have been recently sprinkled or syringed, as the tobacco dust adheres better when the foliage of the plant is moist.

FREESIAS

Pots of these that are well started should have the full benefit of the sun and sufficient water to keep the soil moist, but not soddened. Freesias do not like liquid manure, and do not require it if the soil they are in is only of a fair average fertility as generally used for pot plants.

REX BEGONIAS

Plants of these that have, perhaps, been resplendent with their beautifully marked foliage, will generally show rapid signs of decay towards winter. This is quite natural in these plants at this season of the year and is indicative that the plants require a period of partial rest, and it is best to allow them this period of partial rest when the leaves present the appearance mentioned. It is useless to deluge the plants with water at the roots as is often done when the plants

show signs of decay. By withholding water gradually from the roots and barely keeping the soil moist, the fleshy rhizomes and stems, and perhaps some of the leaves, may be kept in fair condition until spring or early summer, when the plants can be repotted, or, if that is not necessary, the plants will show signs of new growth as the warm summer weather approaches without repotting. Rex Begonias, and in fact all summer flowering and foliage Begonias, require to be kept in a temperature not lower than 45° or 50° when resting in winter. A slightly lower temperature than the plants have been accustomed to, and only sufficient water to barely keep the soil in the pots moist, are the conditions that induce this partial resting period so essential to almost all perennial plant life at some season of the year. Rex Begonias should never have

their leaves sprinkled with water in winter, as it tends to spot and rot the foliage.

GLOXINIAS, TUBEROUS BEGONIAS, FANCY CALADIUMS AND ACHIMENES

All of these should now be resting and the soil left quite dry until time to start them in the spring. I have found that leaving these in the pots undisturbed all the winter is better than taking the bulbs or tubers out of the soil and packing them in sand or charcoal. Where large quantities are grown, it might be necessary to knock them out of the pots to economize space, but where only a few are grown, it is very easy to stand the pots back in a dry place on a shelf, where no drip or water can reach them. A temperature of 55° will suit all but the Tuberous Begonias when dormant; these latter I have found to keep better in a temperature of about 40° to 45°.

THE TRAILING ARBUTUS—HAS IT A PARTNER?

IN the September number of the Horticulturist Mrs. Gilchrist has a good word for the Trailing Arbutus (*Epigæa ripens*). She asks, "can it be cultivated in the garden," and answers, "certainly." I write this note to invite reports of experience upon the subject. The result of my experiments indicates the conclusion that it cannot be successfully cultivated in every garden. The failure of repeated attempts to introduce it into my own garden and into the woods around London led me to suspect that it may, like some of its congeners among the heathers, have entered into a partnership with some species of mycorrhiza. In the absence of the companion of its roots it leads a languishing existence through a season or two and then perishes. The directions given by Mrs. Gilchrist for transplanting the Arbutus do not discredit the supposition that it is dependent on a root partner. It is not improbable that some gardens possess conditions favorable to the growth of the plant

and its mycorrhiza if it has one. "The good ball of earth" carefully lifted with the plant would carry both. I should like to know whether any one has succeeded in growing and increasing this plant from seed or clean roots in a garden distant from where it is found naturally. "Like the thrush," she says, "it belongs to the woods." That's a good touch. After all it is no great loss if we cannot get the Mayflower to grow in the garden, for there it is like a wood-bird in a cage. The delight with which we recall the plant is not due alone to its color and fragrance. In the pleasantest days in the year we greet it in the most lovely parts of our beautiful woods. The whole situation stirs the soul and the senses, and we vainly attempt to carry the pleasure away with us by filling our arms with the fragrant sprays of the dainty trailer. You must go to the part of the woods it selects for its home to fully enjoy the Trailing Arbutus.

London.

JOHN DEARNESS.

ADDRESS TO THE CANADIAN HORTICULTURAL ASSOCIATION

BY PROF. H. L. HUTT, O. A. C., GUELPH, ONT.

I AM pleased to have this opportunity of addressing your Association, because I have a few fatherly suggestions to offer, which I think are of importance to you.

In the first place I wish to suggest a change in the name of your Association. Your membership, I am told, is made up largely of the professional florists of Ontario. Why not call yourselves then, the Ontario Florists Association? Such a name defines your position among the many organizations in this country better than any other. If you had in your Association members from all of the other provinces there might be no objection to the use of the term Canadian instead of Ontario, but not having these, you are making the mistake of spreading over too much ground, a mistake which florists as a rule are not guilty of. A good strong provincial organization would, I think, carry more weight than a weak organization spread over the whole Dominion. And the fact of your being a Provincial organization need not in the least prevent your having members from any of the other Provinces.

There is one other reason why I think your Association should fall in line with the other Provincial Associations, and that is because you might then, like them, look for a little assistance from the Provincial Government in aid of your work. I may say, however, that I am not authorized by the Minister of Agriculture or any of his Department to make this statement, but do so entirely upon my own responsibility. If you can show that your Association represents one of the important horticultural in-

dustries of the Province, that is endeavoring to educate, uplift and benefit the people along the line of beautifying their homes, I see no reason why you should not ask the Department of Agriculture for some substantial assistance in aid of such work as well as the

Fruit Growers' Association,
Dairymen's Association,
Horse Breeders' Association,
Sheep Breeders' Association,
Swine Breeders' Association,
Poultry Associations,
Beekeepers' Association,

and about 200 Agricultural and Horticultural Societies. Most of which are probably doing good work, but none of them doing any more for the general welfare of the people than you could or should do, if you put yourselves about it.

My preference for the term Florist instead of Horticulturist is, because this is an age of specialization rather than generalization. The term Horticulture is a broad general term, which includes fruit growing, vegetable gardening, landscape gardening and horticulture. For nearly thirty-five years we have had an active Provincial Fruit Growers' Association. You might be proud of being known as the Ontario Florists' Association. There is plenty of room for a live Provincial Market Gardeners' Association, and all of these would properly be known as Horticultural Associations. This is enough on this point at present. I suggest the change of name because I think it would be for your benefit.

Now I wish to say a few words with reference to your relation to what are known

as the Local Horticultural Societies. We have now in this Province over fifty horticultural societies, most of which have been organized during the last few years through the efforts of the Ontario Fruit Growers' Association. The greater number of these societies are town societies, and they are quite properly called Horticultural Societies, because their membership, which now numbers 5000, is largely composed of amateurs interested more or less in fruit growing, others in vegetable gardening, but by far the greater number are particularly interested in floriculture.

These societies are doing good work in fostering a love for flowers and giving the people information about how to grow them. It is along this line that you as an association and as individuals might do good work in assisting them. You are both interested in the growing of plants and flowers, the chief difference between you being that they are amateurs and you are professionals. They are growing plants for pleasure while you are doing it for money, and the more pleasure there is in it for them the more money there is in it for you. It is in your interests therefore, from a business standpoint, to stimulate trade by encouraging the amateur in his love for flowers and by teaching him how to care for them. I have heard some professionals say that they did not believe in telling the amateurs how to grow flowers, that this was giving away trade secrets, but if the amateur's plants failed, he would be willing to sell him more. I can tell you this is a very short sighted policy. The secret of the professional's success is in increased demand for plants and flowers. This increased demand depends largely upon the pleasure that the amateur derives from them. And the more successful the amateur becomes as a grower, the more plants he will want. You are widening your money by giving information about growing plants.

There are a number of ways in which you as leaders in floriculture may assist the ama-

teur. In the first place, become a member of your own local horticultural society. If there is not one in your locality, organize one as soon as possible. Encourage the members from time to time to bring out a good display of flowers at your meetings and give all the information you can about them. Whenever there is a fall fair or exhibition held in your locality get your horticultural society to co-operate and bring out as fine a display as possible. Most of our fall fairs are weak along just those lines where you can do the most to strengthen them.

I have spent a good deal of time during the last year in preparing a model prize list for fruits, flowers and vegetables, which, if adopted generally by township and county fairs, would help very much to encourage horticulture along the lines mentioned. These lists will be published in a short time, and may be obtained from Mr. G. C. Creelman, Secretary of the Fall Fairs Association, Parliament Buildings, Toronto. Get one of them, examine it carefully, improve or modify it, if you think necessary, to meet the requirements of your exhibition. Get your Society to adopt it, and encourage all the competitions you can among your amateurs. Do not make the mistake of trying to win all the prizes yourself. That might be gratifying in one sense, but it would pay you better to get as many amateurs competing as possible, and you can make your little pile furnishing them with plants.

In conclusion, I would ask you to give all of us the benefit of your experience by contributing an article once in a while to the *Canadian Horticulturist*, which goes to all the members of the local horticultural societies. Our friend, Mr. Hunt, has been doing nobly in this respect for the past two years, and his articles have helped your trade much more than you imagine. But a number of short articles by different members of your Association would be welcomed, not only by the editor, but by a of us.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution plants and trees.

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

ANNUAL MEETING OF THE ONTARIO FRUIT GROWERS' ASSOCIATION.

The next annual meeting of this Association will be held at Walkerton, Ontario, on December 1st, 2nd and 3rd, 1902. As the fruit-growing industry has become so important in this country, it has been deemed advisable to devote the entire time of the Convention to matters pertaining to fruit, but realizing at the same time that the subject of Floriculture, the growing of Plants for the Home and Home Grounds, Care of Lawns and of Gardens, are also important, arrangements have been made whereby separate sessions will be devoted to this work. The best talent that can be procured has been engaged for the meetings, and it is expected that this year will mark a new era in the progress of the Ontario Fruit Growers' Association.

PROGRAMME.

On Monday afternoon, December 1st, there will be a meeting of the Directors at 3 o'clock, when the Secretary will read his report of the year's work, and business matters pertaining to the management of the Association will be discussed. At this meeting each of the Directors will present a written report of the year's work in Horticulture in his district.

On Monday night the Minister of Agriculture, Hon. John Dryden, will address the meeting, as will also Dr. James Fletcher, of the Central Experimental Farm, Ottawa; Prof. Wm. Lochhead, of the O. A. C., Prof. John Craig, Cornell University, Ithaca, New York, and others.

On Tuesday morning, at 9.30, the fruit

display of the Fruit Experiment Stations will be arranged, after which the meeting will take up the reports of committees on New Fruits, San Jose Scales, Codling Moth and Transportation.

The afternoon of Tuesday will be devoted entirely to the subject of Apples. "**Varieties**" will be discussed by Prof. John Craig, of Cornell University; Mr. L. Woolverton, G. C. Caston, Craighurst; W. H. Dempsey, Trenton; Harold Jones, Maitland; T. H. Race, Mitchell, and others.

The subject of "**Packages**" will be introduced by Mr. W. H. Bunting, St. Catharines, and Mr. A. McNeill, Acting Chief Fruit Division, Ottawa. The **Grading and Packing** of apples will be taken up by Mr. McNeill, Mr. Carey and Mr. Lick, all Dominion Fruit Inspectors. These gentlemen will at the same time explain the workings of the "Fruit Marks Act."

"**Markets and Marketing**" will be discussed by Mr. E. D. Smith, Winona; A. W. Peart, Burlington; H. W. Dawson, Toronto.

"**Controlling Soil Moisture in the Orchard**" will be the subject of a paper by Prof. J. B. Reynolds, of the O. A. C., Guelph.

On the evening of Tuesday, December 2nd, Prof. John Craig, Cornell University, Ithaca, N. Y., will be on the programme, also Mr. C. C. James, Deputy Minister of Agriculture; Prof. H. L. Hutt, and Prof. Wm. Lochhead, of the O. A. C., Guelph, and Mr. Wm. Orr, Fruitland.

Wednesday morning will be devoted to the work of the Fruit Experiment Stations, when the Director of each Station will be present and give an account of the work done at his Station, the varieties recommended for their localities, etc. The information thus imparted ought to be extremely valuable to the fruit growers of the Province.

On Wednesday afternoon unfinished business, the St. Louis Exposition, and such

matters as have been crowded out will be taken up, and if the work of the Convention is finished the meeting will then adjourn.

FLORICULTURE.

On Tuesday afternoon and Wednesday morning separate meetings will be held, where the programme will be devoted entirely to Floriculture. Mr. Wm. Gammage, London; A. H. Ewing, Woodstock; J. H. Dunlop, Toronto; Hermann Simmers, Toronto; T. H. Race, Mitchell; Arch. Gilchrist, Toronto Junction; Dr. James Fletcher, Ottawa; Prof. Macoun, Ottawa, and Prof. H. L. Hutt and Mr. Hunt, of the O. A. C., Guelph, and others have been invited to take part at these sessions.

With such a formidable array of talent there should be no doubt about the success of both meetings, and we trust that as many members of the Horticultural Societies throughout the Province as possible will avail themselves of the opportunity and attend the meeting at Walkerton.

G. C. CASTON, Craighurst,
President.

G. S. CREELMAN,
Parliament Buildings, Toronto,
Secretary.

GRAFTING WAX.—The following is Luther Burbank's recipe:—One pound tallow or raw linseed oil. Two pounds beeswax. Four pounds resin. Slowly melt all together, stir well, and when partially cooled pour into pans which have been moistened or oiled to keep the wax from clinging too tightly to them. For use it should be melted and applied carefully over all exposed cuts and open cracks around the grafts. A small paint-brush is the most convenient for this purpose. It can be applied safely much warmer than can be borne by the hand, but care should be used not to have it very closely approaching the boiling point of water.

HORTICULTURAL SOCIETY EXHIBIT.—Mr. W. W. Hillborn, of Leamington, writes that the Leamington Society has secured several fine exhibits of fruit from local fairs and has forwarded them to be held in cold storage at London, Ontario, until the proper time and then will send them up to Walkerton to be exhibited at our annual meeting.

ALL OUR EXPERIMENTERS are also invited to be present at our Walkerton meeting, and will come prepared to give much information about new varieties of fruit which they have under test.

THE CHARLOTTETOWN, P.E.I., EXHIBITION seems to have included an unusually fine display of apples. The Maritime Farmer says : It is apparent that in the future and the very near future at that, Prince Edward Island must be reckoned with in the fruit markets of our country. It was not alone the question of quality but quantity as well. This last is possibly a source of actual weakness, as farmers have in the past been largely at the mercy of the salesmen in choosing varieties and have in consequence a multiplicity

of sorts which are little known and of less value for export purposes.

There was one group which could always be found gathered around these tables in the centre of the building. It consisted of Rev. Father Burke, the aggressive President of the Association, beaming on everyone as the surprise of the visitors was voiced ; Secretary Dewar ; Inspectors Richard Burke and G. H. Vroom, who have this summer been strong in preaching the gospel of good orcharding on the Island ; Senator Ferguson ; and John Robertson, of Inkerman, the largest orchardist of the province, we are told. These men have a right to be enthusiastic. The possibilities of orcharding there are beginning to reveal themselves and the future is one of great promise. Father Burke informed us that next season will witness a readjustment of their prize list and a weeding out therefrom of all but the commercial varieties. He argues, and is supported by his executive, in favor of an exhibition work which shall not only be illustrative but educative in that it will endeavor to discourage orcharding which is other than of the dollars and cents description. This is as it should be.

Question Drawer

The Ontario and the Crimson Beauty Apples.

1316. SIR,—As a life member of the American Pomological Society I am anxious to know more about two Canadian apples : (1) The ONTARIO. How does its market value, in desirability or popularity, compare with the Northern Spy or the Wagener, also in keeping quality ? Both succeed here, bear early, and the Wagener will keep till spring. I am anxious to know if the Ontario is better than either for market. (2) The CRIMSON BEAUTY. What is its rank in excellence with other popular apples for fall and winter, and what nurseries keep these ?

Hood River, Oregon. HENRY T. WILLIAMS.

We do not think Ontario quite equal in beauty or even in quality to the Spy, nor is it quite as good a keeper, but the tree begins

bearing so much earlier that you get paid for the investment before the Spy begins. Wagener is inferior to both commercially. The fruit grows uneven in size, and is troublesome to handle for market, because it ripens so rapidly.

The Crimson Beauty, known also as Scarlet Pippin and Crimson Pippin, is a seedling raised near Brockville, and not only beautifully colored, but an exceedingly handsome dessert apple. No doubt these varieties can be purchased either from E. D. Smith, Winona, or Stone Wellington, Toronto.

A Curiosity.

1317. SIR,—I send by post, herewith, a specimen of the product of a curious peach (curious at least to me), tree, for you to submit to an expert or some authority on fruit, to examine and say if it is worth cultivating; the tree is an accidental self sown one, origin unknown; the fruit inside the skin if of a deep red color, unlike any that I have ever seen, and seems to indicate a new variety, but possibly it may be common to others although new to me.

Pardon my troubling you with it, perhaps I should have sent it to O. A. C., Guelph, for examination and report.

A. VIDAL, Sarnia.

This is certainly a singular freak of nature, but, in our opinion, of no commercial value.

To Destroy Poplar and Locust Trees.

1318. SIR,—We have some silver-leaf poplars and locust trees we wish very much to get rid of, root and branch (roots particularly). Could you advise us of some means of killing them before cutting down.

H. J. G.

We would advise girdling the trees toward the end of June, and then digging them out by the roots in the fall. This is easier done if the top is not cut off, for a rope can be attached to it, and, as the roots are cut, the whole tree is the easier pulled over.

A Winter Dessert Apple.

1319. SIR,—Which is the best late winter dessert apple for this section? I want one of good quality for home use. The Ben Davis has been recommended to me, but I understand the quality is not the best. I prefer a large apple.

Carleton Place, Ont.

THOS. MCQUAIG.

We would think that McIntosh Red would please you as well as any for dessert purposes; it is larger than Ben Davis, and of special value for eating. Another very fine apple for northern sections is the Wealthy, which unites beauty and size with very good quality, though in southern sections it ripens rather early.

The Phoenix Apple.

1320. SIR,—I notice in the July number, Mr. Carey recommends the Phoenix apple. Would you please describe this apple for me. I can find

no trace of it in either the Experimental Farm Reports or in the Nursery Catalogue.

Berwick, N. S.

A. J. TURNER.

This apple is not grown to any great extent, unless in a very few sections; perhaps it is as well known in some parts of Illinois as any where, and in some parts of Ontario. The buyers seem to like it, because it makes very few seconds in packing. Downing thus describes it: Fruit medium, roundish, slightly oblate, skin light yellow, faintly shaded, splashed and striped with rich red, and with a few light and brown dots. Flesh yellowish, coarse, moderately juicy, sub-acid, good. December to March.

A Disputed Variety.

1321. SIR,—I enclose to your address in a box three apples for identification. They were entered at the Clarksburg exhibition for Ribston, but the judges say they are not. They are under protest, and were given to me for identification. Will you please name them?

The apples are probably the Red Russet. They are quite distinct from Ribston, a variety which we have grown at Maplehurst for many years.

Allenby's Seedling Apple.

1322. SIR,—I am expressing you a basket of seedling apples grown on a tree amongst shrub bushes in a field adjoining my garden and orchard in Galt. In the opinion of several the apple is of superior quality for dessert and for cooking as well. The tree is wonderfully productive, loaded down with fruit just now ripe. It was gnawed by rabbits some years ago when it was quite small, and is dwarfed in height, with branches spreading and bending down amongst the grass. No spraying has been done, and the fruit is clean and practically free of worms. As it is a seedling I would like you and your friends to examine it and tell me whether you think it would be valuable to apple growers. If you do I propose calling it the Lindum, the Latin name for my native city, Lincoln, in England.

Galt.

F. G. ALLENBY.

The apple is a very handsome one, somewhat resembling the Maiden's Blush in appearance, though less oblate. The skin is white, with bright red blush in sun and duller red in parts. The stem is about an inch long, set in a remarkably deep regular cav-

ity, and the calyx is large, open and set in a large abrupt wrinkled basin. The flesh is snowy white, tender, almost butter tincture, fine grained, fairly juicy, and of refreshing agreeable flavor. We should count it good as a dessert apple, and very valuable in the amateur's garden, but too tender for export.

Top Grafting.

1323. SIR,—Could large apple trees, of an undesirable variety, be grafted to form a new head, and, if so, how would you proceed?

Carleton Place, Ont.

THOS. MCQUAIG.



FIG. 2477.

Certainly, old trees of undesirable varieties, if still vigorous, may and should be top grafted; indeed it is a foolish waste to allow trees to continue bearing unsalable fruit, when in two or three years they can be made to produce salable kinds.

The best time to undertake the work is in May or June. Limbs in various parts of the head, not over two inches in diameter, may be sawn smoothly off, and split with a grafting chisel to receive the beveled end of the scion as shown in our engraving. One important point is to so unite the cambium or inner bark of the parts that the growth may continue. Care must always be taken to have the scions cut well in advance, before the buds have begun to push. After the graft is set, it is important to protect the cut surfaces from the air by grafting wax.

Plum Differences.

1324. SIR,—I to-day take the liberty of mailing you a sample of two varieties of plums, and should be much pleased if you would name them. The smaller was bought for Shropshire Damson from E. D. Smith, Winona, Ont., but the judge of fruit at the Charlottetown exhibition gave the prize to a plate of similar plums entered under the name of Blue Damson. The larger is locally known as the Old Blue and has been in cultivation for a great

many years and comes true from pits and suckers. It is a great bearer, and before the advent of the knot every farmer who chose to plant a few trees had abundance of plums, but the tree is very susceptible to the knot and is now very little grown. A plate of this variety was awarded first prize as Shropshire Damson. To me it appears more like a small variety of prune, probably introduced by the early French or English settlers, as it is a free-stone.

What do you think of Spaulding as an early plum? Is it as hardy as the ordinary Domesticas, such as Bradshaw?

What are the distinguishing points between McLaughlin and Jefferson? Also between Imperial Gage and Huling's Superb?

By answering the above questions in the November issue of the Horticulturist you will greatly oblige.

Lower Montague, P. E. I.

D. J. STEWART.

The small samples sent by our correspondent are Shropshire Damson, if the trees of that variety in our experimental plot are correctly named; but the other samples were too much smashed to identify.

The Spaulding is of good quality, and so far as we know quite as hardy as Bradshaw.

Jefferson and McLaughlin considerably resemble each other, but the stem of the former is shorter and the stone is free, while that of McLaughlin is cling.

Huling's Superb is a larger sized plum than Imperial Gage, and a clingstone; while the latter is nearly free and rather better in quality.

New Apples.

1325. SIR,—I am sending you by this day's express a box containing several apples, as follows:

No. 1 Seedling, submitted by Miss Dunlop, Price's Corner, post office, Township of Medonte; two samples.

No. 2 Seedling, grown by C. L. Stephens, Orillia; two samples.

Mr. Race, whom we had at our Fall Show, approves of both in their season and for this section. No. 1 is about 10 or 11 years from seed, and bore a few apples last year, and a fair crop this year. No. 2 is 7 or 8 years from seed, or perhaps only 6 years. It was brought to me quite a small tree 5 years ago, it has made a thrifty but not vigorous growth; this year it bloomed for the first time, and bore 5 12-quart baskets of fruit. The samples of Nos. 1 and 2 have been picked since the 18th of September, and have been in my cellar since the 22nd. I also send a few varieties for which I would like to get correct names.

No. 3 has come to me under three different

names, "Quebec Winter Sweet," "Jersey Sweet," and "Princess Louise," in each case the grower being quite sure that he bought tree under the name mentioned; two samples.

No. 4 is called by each of two persons, "McIntosh Red" and "Princess Louise." Is it either? It looks like McIntosh as shown here.

No. 5 is called by growers "Quebec Winter Sweet," but hardly looks like a winter apple.

No. 6. The scions were given to me as "Princess Louise." What is it?

I shall endeavor to keep samples of the two seedlings until the December meeting at Walkerton, and submit them there; and I shall be very much obliged if, in the meantime, you can give me the correct names of the others.

Orillia.

C. L. STEPHENS.

No. 1 is certainly a beautiful apple. It is large, regularly formed, and beautifully striped all around with rich bright red on a

yellow ground; the flesh is very white, with slight tints of red near the skin; it is fine, and almost tender in texture, fairly juicy, and of fairly good flavor, though scarcely tart enough for the taste of many people. Probably this apple deserves further testing as a fancy fall apple.

No. 2 is a good apple, but in our opinion scarcely striking enough in appearance and distinctive in flavor, take a place with varieties already cultivated.

No. 4 is McIntosh Red.

No. 5 is a total stranger. None of the apples at all resemble Prince Louise (or Woolverton).

Notes from the Horticultural Societies

Regina, N. W. T. The first annual flower show, under the auspices of the Assiniboia Horticultural Society, was held on the 21st of August last, and was a complete success. The tables of the hall were covered with red, white and blue bunting, and flags here and there added to the appearance of the room. What might be termed the national flower of the west—the beautiful and fragrant sweet pea—was shown in many colors and tints, among them being one which attracted very great attention. This was "Burpee's Little Fairy" grown by Mrs. R. M. Napier. It is altogether different from other sweet peas and resembles somewhat an apple blossom half opened. Mrs. R. E. Tennant's first prize collection and the thirty-four varieties shown by His Honor Lieut. Governor Forget were also very beautiful. Eight beautiful varieties of hollyhocks were also included in the Government House collection, while several trees and shrubs from the conservatory lent to the decoration of the large centre table.

Another handsome display was that made by the Government Offices, which included a delicate and very beautiful wreath.

Among other notable plants were an asparagus shrub shown by Mr. G. Michaelis, a lemon tree bearing fruit by Mr. R. B. Ferguson, and a sassafras shrub grown by Mrs. Win. Rothwell, from seed sent from Honolulu.

There was a good attendance at the musical promenade in the evening, when the orchestra, under the direction of Mr. J. S. Demis, rendered a number of pleasing selections. The officers and members of the society are deserving of heartiest congratulations on the splendid results of their efforts.

Napanee. SIR,—We had a very successful "Flower Carnival" the other night, and the booth

where we had our tea and cocoa looked so exceedingly lovely we had it photographed. I am sending you a copy, thinking you might find a place for it in the Horticulturist, and I enclose you a clipping from a local paper, giving an account of the carnival. Feeling sure you take an interest in your affiliated society, you will be glad to hear that it is acknowledged on every side that our Society has done wonders in improving our town. The Society continues in a very flourishing condition, and still has for its president, Yours sincerely,

ISABELLA A. WILKISON.



FIG. 2478. BOOTH AT NAPANEE FLOWER CARNIVAL

FLOWER CARNIVAL.

"The Horticultural Society of Napanee held its annual flower show in the town hall on Friday last, afternoon and evening. The exhibits of cut flowers and pot plants were very varied, and interesting as showing a development of an improved taste in the selection of plants to beautify the home since the inception of the society some years ago. Some magnificent blooms in cut flowers were much admired, as were most of the well developed pot plants. Great pains had been taken by the ladies to arrange the flowers so as to show them off to the best advantage, and their taste was approved by the visitors. The town hall is usually rather a dull room, but on this occasion it was converted into a bower of beauty, made gay with choice blossoms of every conceivable shade of color, set off by foliage of different shades of green and various habits of growth. In one corner was a floral booth, surrounded by an artistic fence of flowers and vines. In this pretty spot delicious tea and cocoa were served under the supervision of Mrs. J. L. Boyes and Miss Belle Pollard, assisted by Mrs. Herrington and Mrs. F. F. Miller. The President was assisted in the decorations by the directors and many of the members, more particularly by Mesdames J. L. Boyes, Rockwell, Gordon, Clarke, Gordanier, Flach, Herrington, McNeil, and Misses Mill, Belle Pollard and Wigmore. The Horticultural Society officials have to thank Mrs. Moodie, of Toronto, and Miss Sinclair, of Orillia, in assisting Mr. Hart in a very good musical programme, which added very much to the enjoyment. Mr. Hart gave various selections on his pianito."

Kincardine.—I enclose you a photo of a branch of peaches grown in the garden of Mr. E. Miller, who has been a member of our society from the beginning. This branch was brought to our exhibition on the 5th of October, bearing twenty-four

peaches. The total product of the tree was over one bushel and this is only the second year of fruiting. You see after all we are not too far north to grow this luscious fruit.

JOSEPH BARKER, Secretary.



FIG. 2478. A PROLIFIC BRANCH.

THE APPLE MARKET ABROAD.

NEW YORK, Oct. 30, 1902.

The cables from the foreign markets for apples show a better feeling in fancy fruit, but a large portion of shipments are arriving in poor order. Keiffer pears are quoted low and unsafe to ship. The prevailing prices abroad are:

Liverpool—Baldwins, 12s to 15s; Russets, 11s to 14s; Spys, 11s to 14s; Greenings, 10s to 13s; Kings, 13s to 16s; Wagners, 12s to 15s; Seekers, Spitzenberg, Ben Davis, 10s to 13s; Newtons, No. 1, 21s to 25s; No. 2, 15s to 17s; No. 3, 12s to 14s. Only choicest fruit brought the high quotation. The inferior quality of apples is having a bad effect upon the market, and damaging prices gen-

erally. Dealers are afraid to touch fruit, as heavy losses have been sustained lately. Keiffer pears, 7s to 10s, in barrels, are arriving in bad condition. Boxes, 4s to 6s, good order. California Newtons, in four tier boxes, 9s.

Glasgows—Kings, 16s to 20s; Baldwins 14s to 16s; Greenings, 11s to 13s; Ben Davis, 13s to 16s; Newtons, No. 1, 20s to 23s. There is good demand for sound clear apples.

London—Baldwins, 13s to 16s; Greenings, 11s to 14s; Ben Davis, 12s to 15s. California Newtons, in boxes, 9s to 10s.

Hamburg—There is a great demand for superior sorts of apples in this market, prices ranging from 11s to 17s.



FIG. 2479. THE SECKEL PEAR.

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THE SECKEL PEAR

OUR frontispiece is an excellent representation of the Seckel pear, a variety that is everywhere acknowledged to be the very finest dessert pear in cultivation. This pear originated on the farm of a Mr. Seckel, of Philadelphia, near the Delaware River. No one seems to know anything about the origin of the original tree, which bore its first fruit about the year 1765. In 1819 a tree of this pear was planted in the garden of the London Horticultural Society, and the fruit was pronounced "to exceed in flavor the richest of their autumn pears."

For years we have grown this pear at Maplehurst, both as a standard and as a dwarf, and must pronounce in favor of the latter for beauty and for quality. For the garden of the amateur who wants the finest quality of pear for his table, or for the connoisseur who wants to complete an interesting collection, we know no pear so desirable; indeed it should find a place in every fruit garden which is planted for home uses; but we do not consider it advisable to plant it largely in the commercial orchard on account of its small size. True, very high prices have been secured for the Seckel pear in special markets where it is well known, but, as a rule, the buyer of a fruit looks for size as well as for beauty

and quality, and the commercial grower must not expect ready sale for small sized pears or small sized apples.

The tree is readily distinguished from other trees in our experimental grounds by the olive brown color of the wood, its short stout joints, and the compact, symmetrical head. The fruit itself has a deep, yellowish brown color, with a bright red cheek; the flesh is very fine grained, melting and juicy; the flesh is honey sweet, with a spicy and delicate aroma; season September to October.

OPINIONS OF OTHERS ON THE VALUE OF SECKEL.

MR. T. H. RACE (Mitchell):—By its very nature the Seckel pear is a dwarf. It may be a paradox to say that, so far as size goes, it is less a dwarf when grown on a dwarf tree than when grown upon a standard. As a standard the tree is inclined to load too heavily and the fruit to run too small, the tree itself grows too thick and close if left to itself, and the wood is too brittle to stand much, or any trimming. A dwarf tree, if inclined to over-load, can easily be thinned, and a good sized fruit may always be obtained. It is not so easy thinning a standard, and if the tree is cut out to lessen

its top, every wound will sooner or later lead to a fatal termination of the part affected owing to the brittle nature of the wood. In brief the Seckel should be grown as a dwarf where it can be done. As a standard it should be trimmed very sparingly, and the fruit thinned if size is desired.

W. WARNOCK, (Goderich):—I consider the Seckel pear one of the very best dessert pears of its season. I know some trees here that have been bearing fruit for the last forty years, and they look healthy enough to continue for forty years to come. The tree grows to the greatest perfection here, and is a regular bearer.

A. M. SMITH, (St. Catharines):—I consider the Seckel one of the best dessert pears we have. The tree is free from blight, is a regular and abundant bearer; to get the best results it should be regularly fertilized and pruned. Though the fruit is small, it will attain a fair size if well thinned and will bring a good price.

W. W. COX (Collingwood):—The Seckel is not much grown in this section. People want quantity rather than quality in this country. It does well here, and I consider it one of the best pears grown. I believe it will be called for a few years hence.

Notes and Comments

A COMMERCIAL PEAR ORCHARD.

DO you advise me to set out a commercial pear orchard of standard pears? I had some notion of setting Tallman Sweets for grafting Spys and Baldwins, and setting dwarf pears between.

Where can I buy good trees the cheapest? By good trees I do not mean the largest, but thrifty and true to name.

MORLEY HOWELL, St. George.

We are inclined to favor the planting of dwarf pears and small fruits in the apple orchard, until the trees require the whole ground; and indeed after it is full grown, in case the owner has only a limited amount of ground to cultivate. As a rule a dwarf tree has seen its best inside of twenty years, and it takes all that time for an apple tree to reach its best days. In planting a commercial pear orchard one must be guided very much by the market for which they are intended. The foreign market is attended with great risk of loss, should the variety be inferior or the conditions on shipboard be unfavorable. Ordinarily speaking the near market is the safest, for this a large number of varieties may be planted; while for export it is best to plant only one or two kinds, and those

the largest and finest that will succeed in the locality.

Fine trees may be purchased at reasonable rates from any of the nurserymen advertising in this journal.

PRICE OF APPLES AND PEARS IN GREAT BRITAIN

SIR,—Is there any record kept anywhere of prices which Canadian fruit fetches in Great Britain? Have pears been selling well in the Old Country this year? What kinds sell best?

MORLEY HOWELL, St. George.

Every week we get reports of actual sales of Canadian apples in Glasgow, Liverpool or London. Just now we have opened a report of 25,000 bbls. at Liverpool, and fine Baldwins were sold at 15s., or \$3.65 a barrel, which would net the shipper a little over \$2.00 in Ontario. Poorer stock sold down to 7s., or about half, and would only net from 75c. to \$1.00; while fine Kings sold as high as 20s., or about \$4.87 a barrel!

Pears have not realized as high prices as we had expected. Our Bartlets sold in Glasgow from 5s. to 6s. a half bushel case, and our Duchess at from 4s. to 6s., rather low

compared with prices obtained some previous years.

Probably such choice goods in small packages should not be sold by auction, but rather by private sale ; for in this latter way each case is sold upon its merits, and not at the mercy of a public market. We are credibly informed that buyers at the public auction often put their heads together and let one bidder establish the price, and then divide the spoils. No doubt, now that we have cold storage, and our fruit can be held, the necessity of quick sales will be done away, and we may expect to sell our fancy packages by private contract, and thus realize their full value.

CHOICE APPLES AT HOME

MR. JOHN BRENNAN, Grimsby, will not export his choice Spys. He sells them by private sale in Canada, and says he has realized this season as high as \$1.75 a bushel box for them on private order. Does not this prove that there are always people in every country who are ready to pay a high price for such goods ?

THE FRUIT MARKS ACT

"I THINK," said Mr. G. E. Fisher, of Burlington, "that this Act needs a thorough revision. It compels people to do what they cannot do, gives them no advantage if they do it, and punishes them if they don't do it. The speculator uses it to frighten the grower into taking a low price for his apples, and the grower who packs his own fruit in fancy grades is compelled to mark it XXX when it is far superior to ordinary fruit of that grade."

Don't you think the value of Canadian apples abroad is advanced by the Act ?

"Possibly, but it does not provide any basis for contract. No court will declare a sale valid if the buyer refuses to pay on the ground of the fruit not being up to grade. There should be provision for government

inspecting and branding, so that a seller could get a certificate of grade from an inspector for a car load of apples, and sell on that government grade. Then his sale would be final.

"The Act is not what we growers want ; we must have a committee to take up the matter, and take time to go into it fully."

FALL PLOWING

I HAVE read that where an orchard is to be set out the soil should be loosened up with a sub-soil lance.

I am thinking of putting out a pear orchard, and perhaps an orchard of Tallman Sweets for grafting next spring. When should I sub-soil the ground? this fall, or would the changing conditions of winter render that work useless by spring. Please let me know at once about this, as I want to plow the piece now, and if you advise it I will put the sub-soil lance on the plow this fall.

MORLEY HOWELL, St. George.

The preparation necessary to fit soil for fruit trees depends very much upon its texture. In deep, rich sandy loam, where there is considerable humus, little attention seems necessary except ordinary plowing and thorough harrowing of the surface soil ; but in the case of soils more close in texture, the deeper the previous cultivation the better. Indeed no after-care or cultivation of the surface can ever make up for neglect of this deep moving and enriching of the soil, in which the roots are to spread, and for which they are to draw their nourishment. This work should be done in autumn, so that the excellent action of the winter's frost may help unlock nature's fertility, and at the same time have a mechanical influence in fining the texture of the ground. Downing says "no fruit tree should be planted in a hole of less size than three feet square and eighteen inches to two feet deep," and again "the most skillful cultivators among us make their spaces four or five feet in diameter, or three times the size of the roots, and it is incredible how much the luxuriance and vigor of growth, even in a poor soil, is promoted by this."

A COMMERCIAL APPLE ORCHARD.

I AM going to plant out two acres in apple trees for commercial purposes. I had decided on Astrachan and Duchess for early, and Wealthy for fall, and King or Baldwin for winter. Would you recommend my choice for winter apples, and would it be variety enough for this quantity, or could you recommend any change (excepting Ben Davis and Spy)? I want apples of good quality and appearance.

Is King and King of Tompkins the same? I have been told by agents that they are distinct and different. If so, which is best, and can it be got from any of our nurserymen? An answer through your paper would oblige.

C. H. DAVIS, East Toronto.

We would advise planting lightly of summer apples for commercial purposes. There is little or no sale for them in our home markets, and the export in cold storage is so expensive, that there is very little profit in them. The Duchess is preferable to the Astrachan, because it averages larger in size and carries better. The Yellow Transparent is good because it can be sold earlier than either, and is very productive.

We would, on the whole, prefer Gravenstein to Wealthy, as a fall apple for profit, especially in the southern part of the province, because of its excellent quality, almost equal beauty, and it does not drop so badly. In the northern parts, of course, Wealthy is best.

There is another apple that probably excels either as an export apple, and that is Blenheim Orange. It is a fairly good bearer and a little later, so that on the whole it is a better shipper than either. Blenheims, exported this fall, have brought as high a price as Kings.

We would not advise planting largely of either Kings or Spy for profit, although when once you have the fruit, you have the most valuable varieties in our whole list. The King, however, is so unproductive that it is unprofitable, and the Spy is so long coming into bearing that you may count on at least fifteen years of waiting before it

will begin to yield paying crops. The Baldwin and the Ontario are good and productive, and consequently profitable, while a small proportion of Ben Davis will always bring good money.

The only King apple known in Ontario is the King of Tompkins Co., so that the latter designation may as well be omitted.

APPLE POMACE FOR COWS.

THE experience of four years with apple pomace silage at the Vermont station, using over twenty cows, is a unit in affirming the nearly equivalent—if not, indeed, quite equivalent—feeding values of apple pomace and corn silage. No undesirable results whatsoever have followed its use. Cows continuously and heartily fed have not shrunk, but on the contrary have held up their milk flows remarkably well. Neither does the milk nor the butter seem injured in any respect. A satisfactory ration used by station has been hay, silage (one-third corn silage and two-thirds apple pomace silage by weight) and from 4 to 8 pounds grain, the latter varying according to age, stage of lactation, etc. Fifteen pounds of pomace per cow has been fed daily with entire satisfaction. Inasmuch, however, as reports of severe shrinkage occurring coincident with the use of apple pomace are current, care and watchfulness are advised in feeding it at the outset.

Apple pomace needs no special care in ensiling. If leveled from time to time as put into the silo and left to itself uncovered and unweighed it does well.

It is trusted that this article may be of some service in calling the attention of dairymen to a waste product of much food value which, in this season of partial failure of the corn crop, ought to be utilized. Let not a pound of apple pomace go to waste this fall behind the cider mill.

THE QUESTION OF VARIETIES IN APPLES.

THIS is a very old and vexed question for the fruit grower. Time was when the variety mattered little. There were cider apples, cooking apples, and dessert apples, and their names were of little moment; for the price was the same for all. The only question was productiveness, and for this the Greening and Baldwin were the favorites with planters of thirty years ago. Then it was found that red apples sold better than green, and the favorites were Baldwin, King, and Spy; but as time passed, the Baldwin did not always meet expectations, the King was unproductive and the Spy too slow in coming into bearing; so that of late the Ben Davis has enjoyed a season of great popularity because it seemed to combine in one apple productiveness, color, and shipping qualities.

QUALITY THE LEADING FEATURE.

OF late however, the question of quality has become more and more important until we find our finest quality, colored cooking apple, the King, is bringing the very highest price in the British market, being sold sometimes as high as \$7.00 a barrel, when Greenings and Baldwins are only \$3.00 and \$5.00. We have no doubt at all that quality will every year become more important and that, for the best results, especially in a fancy trade, high flavor will be in time a more important feature for the grower to consider, than even productiveness of tree or color of fruit. For the man who can afford to wait, and who will give the best cultivation, our Northern Spy is most to be commended, for it combines quality and beauty as no other apple on the list, while the Ben Davis is almost at the bottom of the list for quality, and should be planted sparingly.

THE BEN DAVIS.

OUR position on this question is strengthened by the present drop in demand for Ben Davis, where this apple is best

known. Immense orchards of it have been planted in Illinois and great profits have been made from them; but a change has come, for consumers have tired of an apple of such poor quality and are asking for something better. In proof, we quote from "The Fruit Grower's Journal," of Cobden, Ill., as follows: "The current receipts of apples in this and other leading markets of the West at present and for some time past, show that over nine-tenths of the receipts are of the Ben Davis variety. On last Saturday four boats unloaded on our levee 10,000 barrels of apples, fully three-fourths of them from Illinois and the remainder from Missouri. A canvas of the subject among the receivers disclosed the fact that 9,500 barrels were Ben Davis, and railroad receipts show a similar record. Now this proportion is out of all reason, greatly to the detriment of the apple industry and an injury to the apple growers at large.

"For years the Ben Davis has been found a profitable apple from a commercial standpoint, and this has led to a heavy run on the nurserymen for such trees. The demand not only continued without abatement, but rapidly increased to the exclusion of all the better sorts, and we are thus confronted with the startling fact that a large number of the best varieties grown had to give way to one of the poorest in cultivation—an apple hardly fit to eat or cook, and yet every market in the entire southwest is now flooded with it. The inevitable result is before us, as the Ben Davis is now selling at figures that average only a trifle over half that the other sorts are bringing.

"A most discouraging feature is still in store for the Ben Davis, for most of the orders coming in for apples now request no more Ben Davis. Even the country merchant, who orders only five or ten barrels, almost invariably adds, 'Don't send me any Ben Davis.' Thus much lower prices for it seem assured, while the other sorts, so much

more desirable, will not suffer by the general decline because they are wanted by the trade everywhere."

THE APPLE MARKET STIFFENING.

CONSIDERING the quantity of apples in our country, it is surprising how stiff the prices hold for good stock. The lowest market is usually in November and early in December, because then everyone is shipping, and inferior stock must be sold, or it will spoil on hand. The foreign crop is very light, and not only England but all Europe is calling out for our apples. Add to this the rapid opening of Manitoba and the Northwest as a market for our fruit, and we have most encouraging prospects for the sale of our fruit products not only this year but in future years. Several fruit men have shipped their apples and Kieffer pears to Winnipeg, and report even better results than by exporting them to Great Britain. Nor is this the only new outlet. This year for the first time, a line of steamers is running between Montreal and Capetown, S. A., and the prospect is for a splendid apple market in that country, and already a shipment of boxed apples is on the way.

There are a great many of the best apples now being stored in cold storage in Montreal, and other large centres, to be placed on sale when the poor sort is disposed of. And no doubt these will bring prices that will compensate for the risk and trouble of storage, unless the unusual quantity thus stored should weigh down the market in early spring, and the early apples from Tasmania should come into close competition with our stored stock.

BOXES FOR CHOICE APPLES.

MR. J. B. THOMAS, of Covent Garden, London, England, recently paid a visit to Ontario, and was greatly taken with our beautiful apples. He writes: "Fruit buyers are clamoring for choice,

gilt edge stock in boxes. But herein also mistakes will arise if care is not used to keep out all ordinary fruit. The buyers of this class require a first-class article, suitable for the English best class trade, who can rely upon the contents where the question of price is of little or no importance. For those who, unfortunately, do not control fancy fruit this year, I would say, do not be tempted to try this new method, as failure is with you before you start. Boxes should measure inside—long, 21 ins., deep, 9 ins., wide, 11 ins. Pack with very thin tissue paper.

"I believe more in small profits and quick returns, on which basis I favor the trade more before Christmas than after. I do not consider now our English markets are safe to reckon upon as being open after the second week of March, leaving the public a fortnight for consuming that supply ere the arrivals come to hand from our Southern Colonies—Australia and Tasmania."

An English correspondent of the Sun writes farther on the subject as follows:

"It is in some cases only when we come to the jobber or retailer and the middle-class consumer, that we meet the man who seriously and reasonably prefers the box. Unless, then, a shipper carefully selects his market (perhaps even his broker), when he sends a consignment of apples in boxes, he must be prepared to continue shipping, even at a loss, until by sheer merit his package forces recognition—until, in fact, the retail demand makes itself felt, and is echoed back along the line of trade, with the result that even the brokers enter into competition to secure his fruit in his package. That will take time and care, and cannot be accomplished by the shipper who sends spasmodic shipments in boxes here and there, and gives up when prices do not at once reimburse him for the extra outlay.

"Above all, whether in markets which are now favorable or adverse, nothing but prime,

sound stock (every apple perfect), should be sent in boxes; the first essential is to establish confidence in the box, which is for Canadian apples a new package, and then it will be time enough to send various grades, between which the buyers will learn to distinguish. For common stock, use the barrel."

OUR EARLY APPLE SHIPMENTS ALARM BRITISH FRUIT GROWERS.

IT is evident that our Astrachan and Duchess apples were a surprise to the British people. Such beautiful color so early in the season cannot be had in England, where the sun is so seldom seen, while our clear Canadian skies and the burning rays from old King Sol paint our Astrachans with most beautifully colored cheeks. In this connection the following extract from the journal, *Green Grocery*, of London, England, will be of interest:

A few weeks ago we reported the first consignment of American apples—much earlier than usual. From these early consignments it would appear that American growers intend to place their produce upon the market to compete with our earlier supplies. Now, if this is the case, home growers must wake up. Granted that we are heavily handicapped this season, everything being late owing to the weather, it is not always so. Every grower is aware of the fact, or should be, that the early produce fetches the best price, and this applies to fruit as well as vegetables. Intending apple planters must therefore plant early varieties as well as late ones.

That home growers can beat all comers at growing apples, pears, peaches, grapes, and most other fruits, can be gleaned by those who care to visit the show of British grown fruit held under the auspices of the Royal Horticultural Society at the Crystal Palace, which, by the way, takes place on Sept. 18, 19, 20, or by visiting many of the horticultural shows held in country districts. How to pack the fruit when it is grown, however, is quite another matter, and one about which growers in this country do not trouble themselves sufficiently. It is the greatest mistake possible for growers to content themselves by packing their fruit in sieves and half-sieves just because their fathers and grandfathers did so before them, and the sooner they get out of this "rut" the better. On account of the excellent grading or evenness of the foreign fruit, the method of packing, and its general appearance, the fruit in many cases is purchased in preference to English, not because it is better in quality, for often it is not, but because of the general appearance which home growers would do well to remember.

SUCCESS IN EXPORTING TENDER FRUIT.

THE writer has been forwarding a carload of apples or pears each week since early in August, beginning with the Astrachan and Duchess; continuing with Bartlett pears in September, and Gravenstein, Kings, Greenings, Baldwins and Spy in October.

These have all arrived in excellent condition in Liverpool, Manchester and Glasgow, so that the anxiety about their safe carriage seems to be entirely removed, and we may ship with more confidence.

For Astrachan and Duchess we used the Wilson cases, with fillers, which kept each apple separate from every other apple, and this helped their delivery in a safe and excellent condition. Messrs. Woodall & Co., Liverpool, wrote on receipt of them, saying, "These apples arrived in very good condition. The Astrachans were fairly well colored and nicely graded as to size."

CONFIDENCE IN CANADIAN APPLES.

"WERE you not a little sanguine in your statements about the Ontario apple crop published a few months ago?" we asked Inspector McNeill at the St. Catharines meeting. "Not at all," said he, "Granted that in Essex where they ripen a little early, or where scab or bitter rot is prevalent, that buyers are few and a large quantity of such fruit goes begging, there is a keen demand for our prime apples. Why, in many parts of Ontario to-day I know of \$1.00 to \$1.50 being paid for the fruit in the orchards, and in the Georgian Bay District, where apples ripen late and are known to keep well, growers will not accept these prices but have combined to store and ship during the winter. I believe there are 500,000 barrels stored in that district alone.

OUR NO. 1 OR XXX GROWING IN VALUE.

Does the Fruit Marks Act work in the interest of the apple grower?

"Certainly it does," said Mr. McNiell. "Why already our Canadian XXX apples are becoming known among English buyers, and are wanted in preference to those marked with ten X's from countries where there is no inspection. After another summer or two we shall find retailers ordering our XXX apples, with confidence, at steady values. Here is a grand work for us inspectors, viz., to see that this grade is kept up to the mark, and this we mean to do."

A SAMPLE ACCOUNT SALES.

MANY of our readers will be interested in a sample account sales of these summer apples, so we print one in full. The cases contained about 40 pounds of fruit each, so that about four would equal a barrel, so that the highest price shown, seven shillings a case, would equal about 28 shillings, or seven dollars a barrel—a pretty fancy price for an apple that is almost unsalable in our Canadian markets. The smaller sized fruit, marked X, and only $2\frac{1}{4}$ inches in diameter, sold for from four shillings to four and nine pence, which, of course, brought down the average very much for the whole of this lot.

GLASGOW, 5th Sept., 1902.

Account sales of 303 cases apples ex "Kasbahia," sold by Thomas Russell, by order and for account of L. Woolverton, Grimsby, Ontario. L. Woolverton.

Selected fruit, 2 cases.....	7/0	£	14
" " 24 "A-trachan	6/0	7	4
Inspected " 40 " " "	5/3	10	10
xxx 16 " " "	4/6	3	12
2 $\frac{3}{4}$ xxx 4 " " "	5/6	1	2
2 $\frac{1}{2}$ xx 20 " " "	5/3	5	5
" 2 " " "	5/0		10
xx 16 " " "	5/9	4	12
25 " " "	5/6	6	17 6
17 " " "	4/9	4	9
58 " " "	4/6	13	1
x 48 " " "	4/0	9	12
2 $\frac{1}{4}$ x 11 " " "	4/9	2	12 3
Dessert x 18 " " "	4/6	4	1
x 1 " " "			5
Inspected x 1 "Scotch Ben Davis	5	9	
303 cases.....		£74	4 3

CHARGES.

Freight on goods.....£26 2 4

River and Harbour dues	
Master portage	
Landing, selecting, cooping, catalogues, advertising, etc...	7 11 6
Cartage to warehouse, houseing and delivering.	
Marine insurance, telegrams....	2
Commission and guarantee	3 14 3 37 10 1
Net proceeds.....	£36 14 2

THE EXPENSE OF PACKAGES.

There is a serious difficulty now a days with every fruit grower. Freights and commissions eat so large a hole in our proceeds, that we cannot afford to give away so large an amount in gift packages, which are never returned, but always go with the fruit. This year for example, the bill for packages at Maplehurst was about \$1200, of which \$600 has been for apple boxes, \$400 for baskets and \$200 for barrels.

The California apple box is cheaper, for being only 18 inches long instead of 22, much thinner sides are used; so that while ours costs \$12.00 per 100, theirs can be made for about \$8.00.

ASTRACHAN IN GLASGOW MARKET.

OUR worthy exchange, the Sun, having made some remarks rather discouraging about the export of summer apples, Mr. W. A. McKinnon, who is in Manchester, representing the Fruit Division of the Dominion Dept. of Agriculture, writes in reply as follows:

"I see that your columns have contained expressions of doubt as to the 'holding up' quality of Red Astrachan apples, so I am sure you will be glad to note the following facts:

"One Wilson case of Astrachans, which arrived in Glasgow September 4th, was sent at once to Liverpool, and kept at a temperature of 38 degrees for two weeks; one tray was then removed, and kept in a warm house for a week, without showing any serious deterioration. The other trays

were 75 per cent. sound after another two weeks in storage. A similar tray was kept in Glasgow in a room which averaged 60 to 65 degrees in daytime, for six weeks, when half a dozen apples were still perfectly sound and good. Some had been eaten, and of those which showed decay all had been bruised or defective at the spot where such decay had started. It would seem therefore that selected Astrachans, if properly shipped, have plenty of 'life' in them after arrival here to answer the commercial requirements of an early apple.

"Glasgow is doing remarkably well with box fruit, the trade preferring as little packing material as possible with the fruit, and asking for carriage in ventilated packages and compartments, except where cold storage is absolutely essential.

DUCHESS PEARS.

"Some Duchess pears from Burlington are pronounced the finest in flavor and appearance ever seen in Glasgow by one of the best retailers here. I examined and sampled them along with some French Duchess of equal size, and there was simply no comparison between them, the Canadian fruit being infinitely superior. The Grimsby ventilated half-case (a variation of the Californian), with wrapped fruit and very little excelsior packing, if any, is undoubtedly the favorite package with the trade here."

SPOTTED GREENINGS NOT WANTED IN GREAT BRITAIN.

IN a letter to Mr. A. McNeill, Mr. McKinnon says: "I shall, at the risk of wearying you, state once more that this is no place for poor apples or pears. There are tons of trashy fruit in the country, and they find their level in the poorest class in shops, some being really too miserable to sell for costers' barrows. It is simply absurd for shippers to forward poor fruit,

paying as much for all incidental expenses (except, alas, for commission), as they do for good merchantable stock. I wrote you to this effect from Paris early in September, and have no doubt you passed the unheeded warning on to the public. Yet to-day's lot, ex-Numidian, showed up in painful contrast to similar varieties from Boston. Greenings were especially poor, and have suffered greatly from 'sweat spots,' particularly in the heart of the barrel. Buyers summarize thus: 'Canadian fruit very poor this year, but packing marvellously improved.' There are exceptions, but two Irish buyers to-day said they could at least count on the bulk bearing definite relation to the face, although they knew nothing of the Fruit Marks Act."

And to the Sun he writes: "Lots of poor stuff," Mr. McKinnon says, "has come forward to the slaughter, and some have even taken the trouble to pack this poor stuff in boxes and Wilson cases for shipment."

And the editor sensibly remarks: "It is surely foolish enough to send poor fruit to such a distant market, in any form of package, but it is scarcely possible to conceive of the folly shown in packing this poor stuff in expensive packages. It is possible, however, that the shippers did not know just how poor the quality of stuff was that they have sent over. There were shown at the meeting of the Entomological Society at London last week some Greenings which had, by accident, been delayed at a Canadian port on the way to the British market. These were delayed for about the time it would have taken them to reach the place of sale in Britain. The apples had on them small black marks, caused by fungus disease, and the rot which looked insignificant at the time of shipping had, while the fruit was being delayed in transit, developed until the whole thing was covered with black rot. Fruit which is at all badly spotted should not under any consideration be sent to the Old Country market.



FIG. 2480. BITTER ROT.

BITTER ROT OF THE APPLE.

THIS disease is very destructive to the apple, south of the 40th parallel, but we had hoped that in latitude 43 to 45 would escape it entirely. We once thought the same of the San Jose Scale, but were quite mistaken, for it bears the cold only too well, and now we find many Ontario orchards quite seriously affected with Bitter Rot of the apple. It is identified, says Professor Burril, in growing apples by minute brown specks which enlarge so as to make each a conspicuous dark colored circular spot, which, while preserving its circular form and maintaining a sharply defined border, gradually extends to become soft; but is soon depressed, or somewhat sunken, while the skin assumes a leathery appearance. The outer portion of the spot remains smooth and polished, while the central area loses its lustre and becomes roughened by the formation of a multitude of minute pustules arranged in irregular, concentric circles. When the atmosphere is not too dry, each of these little pustules open and there exudes in microscopic masses, or columns, a waxy substance, which is at first pale pink in color. then pale dull red, or, at length, grayish when long exposed to the sun. The spot ultimately, becomes shriveled in appearance, tough in texture, and very dark, approaching black in color. When there are, to begin with, several spots, they run together but

commonly preserve some indication of the original centers of each in the general area of infection.

The diseased apple finally becomes dark brown throughout, and shriveled into a dry hard, and much wrinkled mass, called a "mummy." This may remain firmly attached to its twig on the tree for a year or more, but commonly falls to the ground before the drying process is entirely completed.

In our orchard at Maplehurst we have noticed this disease especially troublesome in one block of trees on the lake shore, and it is apparently inclined to spread. In Illinois the disease has become most alarming, and, in 1900, the loss in four counties was estimated to be \$1500,000. The best remedy is faithful spraying with Bordeaux mixture, at frequent intervals.

FRUIT TRANSPORTATION IN NOVA SCOTIA.

OUR friends in Nova Scotia have had much to complain of in the transportation of their fruit, but Mr. Ralph S. Eaton writes that now, by contract with the Furness Witthy Company their Deputy Minister of Trade and Commerce has secured nearly everything asked for. The following is a copy of the letter reviewed from that official by Mr. Eaton :

"I think all of the clauses which were asked to be inserted on behalf of the fruit growers last winter are contained in the contract and are in effect as follows :

"It provides that the steamer shall be fitted with suitable accommodation for carrying perishable cargo such as apples or other fruit, dairy produce and other products, without deterioration, with holds and 'tween decks provided with a thorough system of ventilation by means of forced circulation of fresh air by electric or steam fans in such manner as to secure a uniform cool temperature ; the intakes for fresh air to be protected by contrivances for that purpose similar to the Gibbs Steamship Ventilators so as to operate in all weathers without permitting water, spray, or other dampness being taken into any place where cargo is carried, and that such ventilating appliances shall be operated at all times when cargo is on board; that at least one of the steamers employed shall be equipped with refrigerating plant for the forced circulation of cool air through places where tender or early varieties of apples are carried; the space to be so cooled to be from 25,000 to 40,000 feet; tempera-

ture to be maintained at between 50 and 55 degrees Fahrenheit; that the steamer while so employed shall not carry in any hold or between any decks more than five tiers of barrels of apples or other fruit except they be stowed in such manner and in such tonnage as will relieve any tier from the weight of more than four other tiers; that the steamers when carrying fruit shall be run at an average speed of not less than twelve knots per hour."

A CURIOUS APPLE TREE.

WE take the following from a recent issue of the *Orillia Packet*: "A decided curiosity in fruit was left at the *Packet* office on Saturday by Mrs. Silas Prophet, of Atherley, in the form of a stem from an apple tree, bearing from one bud a fair size apple, a crab apple, and a pear. The freak grew on a tree in the orchard of Messrs. Gaddey Bros. The tree has produced a number of the oddities, but most of them had been eaten by the children. The pear is well formed, but otherwise it resembles the apple in appearance, having the same coloring and markings. Mr. Wellington Fisher, to whom the

Packet showed the odd combination, thought it most remarkable and worth preserving."

We show an engraving of this curiosity, which will give our readers a correct idea of form, which is certainly a monstrosity. It has no other value, however, for the flesh of apple, pear and crab are all apple.

A LANDSCAPE GARDENER'S CRITICISMS.

WE take it as a compliment that such a man as W. H. Manning, so long Secretary of the American Park and Out-Door Association, and a landscape architect, should find interest in our journal. In a recent letter he writes:

The "Flower Garden and Lawn" always has something of interest in it. I see this time that you have the garden of Mr. R. S. Anderson, where I should judge some man who likes freaky stone structures has been in charge. Certainly the effect is not a good one from a landscape architect's point of view, whose purpose it is to make an attractive picture in which no one object will be unduly obtrusive. The little glimpse of a street car used as a summer-house on Main street is very interesting and rather more attractive. The garden at Bowbrook is certainly an attractive one, although here I should think there had been an attempt to introduce too many curious conceits in the way of artistic structures. Mr. J. M. Hall's garden at Hamilton interested me rather more than the others in a way, because it is evidently not the work of a gardener but that of a flower lover who has a more definite purpose in view than the display of plants, pots, rockeries, and the like. This little place will be a gem in its way. Notice, if you will, how well the fence is being covered, and how soon the existing growth will so completely cover it that it will merge into the distant landscape. I have written Mr. Hall, asking him if he can let me have a copy of the photograph that is reproduced in the *Horticulturist*.



FIG. 2451. PEAR, APPLE AND CRAB ON ONE BRANCH. A CURIOSITY.

CHEAPEST AND MOST EFFECTIVE SPRAY

A PUBLIC DEMONSTRATION IN MR. ARCHIBALD'S ORCHARD NEAR ST. CATHARINES—A THRESHING ENGINE UTILIZED TO COOK THE LIME AND SULPHUR WASH—INSPECTOR FISHER'S PERSEVERANCE BRINGS SUCCESS.



FIG. 2432. ORCHARD SPRAYED WITH LIME AND SULPHUR MIXTURE.

THE Hon. John Dryden has recently received the report of the San Jose Scale Commission on Mr. Geo. E. Fisher's work as inspector, and these gentlemen have expressed themselves fully satisfied with the results attained thus far.

For fungous diseases of fruit trees of all kinds, and for scale insects, a winter or spring application of the lime and sulphur wash was found to be the best and cheapest remedy, and this in the opinion of Mr. Fisher, might be profitably applied to one's whole orchard whether affected by scale or not, because it cleansed the bark and made the tree more vigorous.

On Wednesday, the 19th, an orchard demonstration meeting was held on the farm of Mr. Archibald, near St. Catharines, at which a large number of fruit growers were present, and in addition, as representatives of the Government, Mr. G. C. Creelman, Secretary of our Association, Mr. Alexander

tor, and Mr. L. Woolverton, Secretary of the Ontario Fruit Experiment Stations.

The great objection so far offered to the use of this remedy was the trouble of preparation, but here we found Mr. Fisher preparing it in a wholesale way, and at a cost of only about $1\frac{1}{4}$ cent a gallon, or about $\frac{1}{8}$ the cost of whale oil soap. Twelve kerosene barrels were arranged in a row, as shown in our engraving, and the contents kept boiling by the steam generated in the threshing machine boiler at the end, and conducted to each barrel by gas piping. The formula used was one pound of lime to one half pound of sulphur in one gallon of water, all boiled at least two hours, and applied hot. If allowed to cool before applying, a chemical change takes place which renders it less effective. After Mr. Fisher had explained the process of preparation, the crowd retired to the orchard and examined trees McNeill, of Ottawa, Dominion Fruit Inspec-



FIG. 2483. BOILING LIME AND SULPHUR AT MCCARDLE'S.

treated last spring with this mixture, and others treated with whale oil soap; and while none of the trees were completely cleansed of scale the former were in better condition than the latter.

Mr. McNeill suggested the use of the small agricultural boiler for individual farmers who could not co-operate; to this Mr. Fisher assented, saying it could also be done in a still smaller way in iron pots over

an out-door fire, but of course would be much slower and more expensive.

When should it be applied? Some one asked.

In early spring, said Mr. Fisher, usually in April. It only needs to be applied once a year, and of course it is not a suitable spray for the foliage. If a summer remedy is needed, an emulsion of crude petroleum and water is recommended instead.

MEN WHO HAVE SUCCEEDED

JOHN CLAUDIUS LOUDON — THE FATHER OF
HORTICULTURAL JOURNALISM—LANDSCAPE GAR-
DENER — TRAVELER — JOURNALIST — AUTHOR.



English horticultural literature than his; but his fame was earned by the most intense study and application. Now-a-days it seems the fashion among many students to affect to despise hard study, and to impress their mates with how much they know with the least application. Success is not so attained; it is only secured by hard persevering labor.

Born in 1782, the son of a farmer, he was early encouraged in his tastes for gardening by being apprenticed to a Mr. Dickson, Nurseryman and "Planter" at Leith Walk, Edinburgh. The time was most opportune, for like the swinging of a pendulum, the ideals of garden design were just ending a great revolution, and turning from the extreme of the formal or architectural style, which had prevailed in England during the early part of the 18th Century, to the landscape gardening style, which gave more freedom of conception, while adapting nature's best examples to the park and garden.

THE old Latin Proverb, "*Labor omnia vincit*," has been often quoted and perhaps in no case is it more clearly demonstrated than in the life of John Claudius Loudon. There is no name more prominent in

Mr. Loudon's work as a draughtsman of estate and garden plans, brought him into acquaintance with men of refinement and education, such as Sir Joseph Banks, of

London, and other men of eminence, from whom no doubt he gathered much that inspired his pen in later years. His first published book was "Observations on the Formation and Management of Useful and Ornamental Plantations, and on the Theory and Practice of Landscape Gardening" and this appeared in 1804, when he was only twenty-one years of age. How many young men of to-day have given the world such a work at such an age!

Previous to this he had contributed an article to "The Literary Journal," criticising the use of Scotch Pine and sombre Yew trees in the parks and gardens of London as giving altogether too gloomy a character to the landscape; and also advising the planting of the Thames embankment and Picadilly with those strong fine Buttonwood trees, which to-day are so essential to the attractiveness of those sections of the great metropolis.

When not engaged in landscape designs, Mr. Loudon wasted none of his precious time; he would either be engaged in writing some article for a journal, or some book for publication; or he would be reading Greek or Latin authors; or he would give attention to his favorite pastime the practice of painting, in which he was successful enough to have one or two of his pictures hung in the Royal Academy.

In 1813 Mr. Loudon visited Gottenburgh in Sweden, to see Linnaeus, the great father of Botany; thence he journeyed on to Berlin, to Riga and St. Petersburg, "proceeding," says the Journal of Horticulture, "he wended his way to Moscow, on which journey he got fixed in a snow storm. His horses were unable to extricate his vehicle, and judge of his consternation when he saw his postillions unyoke their horses and ride off. He remonstrated; he pleaded that he would surely fall a prey to the roving wolves, or, if he escaped them the awful cold would overcome him. He was calmly told to go inside his vehicle and

securely fasten the windows, upon which no harm need be feared; and the drivers added, as they rode off, that they would be back early the next morning with extra horses. And so they left Mr. Loudon alone on a Russian waste, with a snowstorm in its fury around him and the howls of the wild wolves borne in ghoulisn discord upon the screaming winds. Well might he cower and dread the worst; it would be a test to the nerves of even the Great Duke, and the memory of one moment in that awful night when a pack of wolves crossed the road where he was held was never forgotten during the remainder of his life. Returning via Prague, Dresden, Leipsic, Magdeburgh and Hamburg, the itinerant again landed in England on the 27th of September, 1814." During this long and interesting route of travel he had sketched views of every place of any gardening merit, and had, of course, made copious notes, which are found in his "Encyclopædia of Gardening." He had made himself known to most of the leading scientists, and had been elected Member of the Imperial Society of Moscow, the Natural History Society of Berlin, the Royal Economical Society of Potsdam, and many others.

The loss of his fortune, through an insecure investment, added necessity to love of work as an inspiration to his zeal, and in addition to several books which he was writing, he established in 1826 "Loudon's Gardeners' Magazine," which was continued until his death in 1843.

He was married at the age of forty-seven to Jane Webb, herself an authoress, and the two were most congenial and devoted to each other; and to her we owe an excellent memoir of his life written for his last work, "Instruction for Young Gardeners," which was not quite finished at the time of his sudden death.

Perhaps his greatest work was the "Arboretum et Fruticetum Britannicum," which

is still the best illustrated work of its kind, and considered indispensable by students of botany. It was five years in preparation, viz., from 1833 to 1838, and in its accomplishment he spared neither labor nor money. He resolved that all drawings should be made from nature, and employed seven artists constantly at this work, accompanying them during the day, and working on the literary part at night, even until the small hours of the morning. No wonder he was deeply in debt when it was all finished, to artists, printer, stationer and engraver; and the amount would have staggered any ordinary man, for on counting up the cost he found it no less than \$40,000, and to the end of his life he was engaged in the almost

superhuman effort of clearing off this mighty debt.

In speaking of his illness Mrs. Loudon writes: "I feel that I cannot continue these melancholy details; it is sufficient to say that though his body became weaker every moment, his mind retained all its vigor to the last, and that he died standing on his feet. Fortunately, I perceived a change taking place in his countenance, and I had just time to clasp my arms around him and save him from falling, when his head sank on my shoulders, and he was no more."

And Mr. Wm. Paul, the great nurseryman of Waltham Cross, who knew him personally, says of him, "Loudon was the greatest Horticulturist England has ever known."

BY-PRODUCTS OF APPLES.

The Vermont Experiment Station has been investigating various methods of utilizing the by-products of the apple. Cider-making, the station declares to be unprofitable if carried on by the use of hand-grinders and presses. On an average it required one bushel of apples to make two gallons of cider, while with modern machinery and an eight-horse power gasoline engine a bushel of apples would make four gallons of cider at a cost of 2.3 cents a gallon. They found making apple jelly from cider to be profitable. A hundred pounds or eleven gallons of cider would make twenty-five pounds of pure jelly, at a cost of about one cent a pound for the cider used, that is, twenty-five cents worth of cider for twenty-five pounds of jelly. For table use one pound of sugar for each five pounds of jelly, and the material costs about three cents per pound of the finished jelly. Marmalade was made by cooking the apples in cider, and eighty

pounds of fresh fruit, eight gallons of fresh cider, and thirty-five pounds of sugar, making 116 pounds of marmalade, which, with the apples at twenty-five cents a bushel and cider at 2.3 cents a gallon, cost less than two cents a pound for materials. When the fruit was pared and cored by hand, it lost over twenty-five per cent. in weight, but when put in whole, and put through a colander after it was cooked, it lost but five per cent. In making vinegar, they found that the common method of allowing the cider to ferment and sour at will was unprofitable. To add vinegar mother and cultures of acetic acid and controlling the temperature, good vinegar was made, but the process was slow and wasteful. To mix equal parts of fermented cider and old vinegar changed the whole to good vinegar quickly, but this requires keeping on hand a large stock of old vinegar.

FRUIT TREES—PRINCIPLES REGULATING GROWTH.

IN studying methods of manuring orchards, it must be admitted that the general principles which apply to fruits apply quite as well to vegetables ; that is, the essential constituents of manures must be the same. A fruit tree will not make normal growth in a soil destitute of nitrogen. That nitrogen encourages leaf-growth is a recognized fact, and since trees grow by means of leaf and root, its presence is required in the soil in order to promote the growth and extend the life of the tree. It is very evident, too, that potash is an essential constituent in the growth of fruits, not only because it constitutes a large proportion of the ash of the wood of the apple, pear, cherry and plum, and more than 50 per cent. of the ash of fruit, but because it forms the base of the well-known fruit acids, and in order to nourish a tree properly as well as to ensure proper ripening, phosphoric acid is also very necessary. It is also a matter of common observation that, in the production of stone fruits particularly, lime is an important constituent. Its function seems to be to strengthen the stems and woody portion of the trees, to shorten the period of growth, and to hasten the time of ripening. Fruit trees growing on soils rich in lime usually show a stocky, steady, vigorous growth, and the fruit ripens well ; while these on soils which contain but little lime, particularly the clays, appear to have an extended period of growth, the result of which is that the wood does not mature and the fruit does not ripen properly.

Nitrogen is particularly efficacious in promoting growth. In fact, the amount of growth and the color of foliage are reliable guides for the application of nitrogen. When

mature or bearing trees make a foot or more of growth upon all shoots, and when the leaves are of good size and dark green colored, the soil probably has enough nitrogen. A free application to such soils of the element nitrogen might do more harm than good in promoting growth at the expense of fruit.

TILLAGE AN ADVANTAGE.

In general it is better to supply nitrogen by good cultivation, which assists nitrification in the soil. If the trees do not make sufficient growth and are yellowish in foliage, good cultivation begun early and repeated very frequently in connection with the use of potash and phosphoric acid, will usually correct it.

Potash is generally the most important ingredient to be applied directly to orchards, particularly after the trees have reached mature age. The store of available potash in the soil is much increased by the thorough tillage which has already been recommended, but in fruit-bearing orchards potash should also be supplied in some commercial form, as sulphate or muriate of potash.

In general phosphoric acid is probably less important in fruit production than potash, although it throws the tree into fruit quicker, and has a most beneficial influence on the growth of the wood and leaves. The best form in which it may be applied to trees is probably by bonedust, and half and quarter-inch bones. The coarser the bones the heavier should the dressing be.

The amounts of manure to be applied depend upon the character of the soils, the kind of fruit, and the age and vigor of the trees.—*Gardeners' Chronicle*.

MARITIME FRUIT GROWING

PRINCE EDWARD ISLAND RAPIDLY COMING
TO THE FRONT AS AN APPLE COUNTRY—
NOTES FROM OUR SPECIAL CORRESPONDENT.

WHILE the crop of apples has been short in Nova Scotia and the luscious Gravenstein is very little in evidence this fall, Prince Edward Island, under its excellent F. G. A. organization, presided over by our friend Rev. Father Burke, seems to be rapidly coming to the front as a fruit-growing province. In apples, plums and pears she has made wonderful and permanent progress; and now it appears there is ample evidence that she can grow peaches. A splendid specimen of the Elberta species three years from planting was put on exhibition recently at Charlottetown by Mr. Murchison of Bonshaw. Islanders are pleased with themselves.

The cold and wet weather of spring played great havoc with the fruit prospects of Nova Scotia. In blossoming time there was very damp weather, and the pollen was not as a consequence distributed. The Gravenstein is almost a complete blank, despite a perfect profusion of bloom. Later bloomers seem to have done better. Baldwins and Ribstons are a good catch and the quarter crop of the province is made up of these and some early varieties. Commercially, Nova Scotia is not likely to compete very largely in the foreign or domestic markets this year.

New Brunswick never attempted, to any extent, fruit-growing. Not that apples cannot be grown there successfully, but somehow or other the spirit of organization, which does all things now-a-days, has not invaded her. She has had nurseries, has made her own of the Duchess, for example, which is everywhere grown in the Maritime

Provinces under the name of "New Brunswick," but has not induced the people in any numbers to take to orcharding.

Little Prince Edward Island, garden from end to end, shut out from the possibility of manufacturing by its insular position, has been casting about to develop all its agricultural possibilities. Fruit growing is among them decidedly; and of late it has made gigantic strides there. The Federal Government has given the F. G. A. two skilled instructors, who have travelled over the Island from end to end this season and held demonstration classes in all the wide range of horticultural work. They have got into as many individual orchards as time would permit, and proved the wisdom of Father Burke's contention at Cobourg last year, that missionary work in horticulture is best done in the orchards of the class of farmers needing instruction of that kind. A small province like P. E. I. lends itself admirably to this work.

The Exhibitions have been dissappointing in the fruit departments this year at Halifax and St. John, while Charlottetown's display has never been excelled in the provinces. The Maritime Farmer, of Sussex, N. B., thus alludes to this feature:

"At this point (the fruit stands) came a revelation of the show and it is apparent that in the future, and in the very near future at that, Prince Edward Island must be reckoned with in the fruit markets of our country. It is not alone the question of quality but quantity as well." The writer, Editor Ross, himself an Ontarian, and well qualified to judge, reviews lucidly the large

lists of kinds on exhibition and praises the men who are rapidly bringing the little Island to the front as a fruit country.

"There was one group" he says, "which could always be found gathered around these tables in the centre of the building. It consisted of Rev. Father Burke, the aggressive president of their Association, beaming on everyone as the surprise of the visitors was voiced; Secretary Dewar; Inspectors Richard Burke and G. H. Vroom, who have this summer been strong in preaching the gospel of good orcharding on the Island; Senator Ferguson; and John Robertson, of Inkerman, the largest orchardist of the province, we are told. These men have a right to be enthusiastic. The possibilities of orcharding there are beginning to reveal themselves and the future is one of great promise. Father Burke informed us that next season will witness a readjustment of their prize list and a weeding out therefrom of all but the commercial varieties. He argues, and is supported by his executive, in favor of an exhibition work which shall not only be illustrative but educative in that it will endeavor to discourage orcharding which is other than of the dollars and cents description. This is as it should be."

Some who go to apple shows to see all the different varieties on exhibition may not

be over pleased with this resolve of the practical officials of the F. G. A., but, on the whole, its wisdom will commend it to all fruitmen.

The prize list appears to have comprehended about all the commercial varieties and an exhaustive list of others. It will be interesting to see what those gentlemen discard as a means of comparison with their own tastes and necessities in this important matter. To the surprise of many the Island beat Nova Scotia in their own Gravenstein. And she may excel us in growing Ontario apples.

Already P. E. I. has sent forward a considerable shipment of fruit, apples principally, to Great Britain in the Manchester Trader. She has many more to send and may be now regarded as established in the business. Large orchards of a single kind are coming on and soon it will be a pleasure for the buyer to extend his operations to "The Garden of the Gulf." We hope the good name it enjoys for honest packing may never be impaired and that the commendable efforts of its progressive F. G. A. officials may continue to bear good fruit. A large commercial concern for preserving and canning is now on its feet on the Island, and must assist those patriotic men to the immediate expansion of the fruit industry.

RECENT RESEARCHES IN THE ORIGIN OF SPECIES.

SINCE Darwin advanced his theory of the origin of all species of plants by natural selection, scientists have, to a great extent, spent their time in speculating as to the various factors in evolution and the methods of inheritance and descent. A few, however, have depended largely upon the result of direct experiment with the plants and animals themselves. Instead of looking around for a ready answer in nature to every question they find in their re-

searches, these men take the living things and, by years of experimental research with them, secure the desired information. Among such men are Dr. White, of the Smithsonian Institution, Washington, and Prof. Hugo de Vries, Director of the Amsterdam Botanical Garden. As a result of his labors, de Vries now gives to the world a new theory, that of the origin of species by imitation or sudden change.

In support of this theory, Dr. White, in

an October issue of *The Independent*, tells of a rather remarkable experience with tomatoes, an experience which he thinks goes to show conclusively that varieties can originate by sudden change or mutation in the seed plants. He first points out the botanical classification of the tomato, and divides the group into three forms, known as *Lycopersicum esculentum*, *L. solanopsis*, and *L. latifoliatum*, respectively. Each one of these includes some of the large number of varieties catalogued by our seedsmen; yet each form is readily distinguished by differences of flower and leaf, and of general habit and relative size of the plants. *L. latifoliatum* is represented in our Canadian catalogues by the variety Mikado or Turner's Hybrid, while a good example of *L. esculentum* is the Acme.

Now Dr. White's experience was as follows: In 1898 he obtained some seed of the Acme, raised the plants and set out his small plot of about thirty plants. These grew and fruited, and were typical of the variety in every way. Seed was saved from some of the best fruits and plants raised therefrom in the spring of 1899, with the expectation of obtaining a crop of Acme from them. Dr. White thus describes the result: "The seeds germinated promptly and the young plants grew healthfully, but from their first appearance above ground they showed a marked difference from the Acme plants from which they sprang. When they reached the fruiting stage they had all developed into typical representatives of *Lycopersicum solanopsis*. To put the matter in the strongest light, I repeat that the whole crop changed uniformly and completely from *L. esculentum* to *L. solanopsis*, the change having taken place in the germinating seeds, which I planted in the spring of 1899. Not only was there complete plant mutation, but the fruit differed in flavor, consistence and shade of color from that of the parent Acme plants, and it also ripened earlier than did the latter.

Unfortunately, Dr. White did not save any seed from this new type. In 1900, however, he replanted with Acme, to see if the same result would follow. The seed was obtained from another source, a hundred miles from Washington, and the plants raised therefrom came true to type. Special care was exercised in the selection of seed from typical plants both as regards plant and fruit. This seed, sown in 1901, produced plants with the same characteristics as those of 1899. Exactly the same change had occurred in both these years.

Both White and De Vries prove conclusively that the changes in the plants under their observation were not the result of hybridization, as many would contend. If not hybridization, then what? The new plant form appeared suddenly with all its characteristics in full perfection. It was perfect upon its first appearance, and constant in its progeny. Such being the case, then varieties may originate by sudden change or mutation. As De Vries says: "Varieties may originate by one or two other methods, yet some undoubtedly did arise by mutation or abrupt change, an instance which came under my observation."

This theory is not in any way opposed to that of evolution, but simply furnishes a concrete example of the way evolution takes place. It appears to those who doubted the statements of many scientists that life has existed on the earth for a period of time almost beyond human comprehension. So, too, it allows of those who still believe in the special creation of species a right to a place among rational scientists. De Vries thinks it is possible to study the production of such new forms as observed by White and others, and to ascertain the laws which govern them. Then, with a thorough knowledge of these laws and the causes of mutation, one might even aspire to attain a method of producing the new forms at will.

P. W. H.

THE CEDARS OF LAKE COUCHICHING

BY

T. H. RACE



FIG. 2485. CEDARS AT THE HERMITAGE, ORILLIA.

THE photo engravings which illustrate this article will give one but a poor idea of the beauty of the trees they are intended to represent. What is there in tree or shrub in all America more beautiful than the common cedar, or American *Arbor Vitæ*? The cedars of Lebanon were noted for their size; those of America for their natural and artistic beauty, but if left to nature these will attain a symmetry in form, and a compactness in growth unequalled by any other evergreen. In a hedge, or clipped into any of the grotesque shapes in which they are often seen, they will stand more abuse and live longer than any evergreen we have for a similar purpose. The objection is that they are too slow in growth, and in place of them the Norway Spruce is too often chosen in preference. We admit the objection, but it sometimes pays to wait.

If left to nature, the spruce for the park or lawn will grow more rapidly, but it will

be loose, open and sprawling, and in a few years become more or less disfigured and dirty from the dead and decaying inner branches. The cedar, on the contrary, will grow compact, faultless in shape and will always be clean. If used for a hedge, or trimmed into some unartistic shape as is often the case, the cedar will endure for years and revive its freshness as if ever young, while the spruce will after a few years begin to show its inner dead branches, as mentioned above, and from that its beauty is always more or less marred.

My natural admiration for our native cedar was greatly strengthened by a recent visit to Orillia, and to the home of our Director, Mr. C. L. Stephens, on one of the points projecting into Lake Couchiching. More beautiful cedars, left entirely to nature, I never saw than those growing irregularly on the somewhat extensive grounds about this home, known as "The Hermitage." The views given show the pathway through



FIG. 2486. AT THE HERMITAGE.

the cedars leading to the home from two different directions. The trees are a uniform height of about thirty feet, and they form a natural grove several acres in extent, through which winding paths run. Through one of these views may be seen a large spreading beech, which stands almost in front of the house and on the edge of the tennis lawn, and under its spreading branches, it is said, one may enjoy almost a cold storage temperature the hottest day in summer, with the healthful aroma of the cedar all about.

Every defect in nature, it is said, has its compensations. A defective summer will sometimes lend an additional charm to the autumn. These cedars furnish an example. Their deep green and autumn freshness was never before so marked. The continuous rains of the past summer which gave our director, Mr. Stephens, cause to deplore the

spotting of his apple crop and the unripening of his grapes, gives him compensation in the added freshness of his cedars, and the additional charm they impart to his whole surroundings. Nature has done much for Orillia in the way of scenic beauty and natural forest growth; and its enterprising citizens are with admirable taste adding to its attractions by a judicious system of tree planting. But nothing within the environments attracted my attention so much as its handsome cedars, growing promiscuously everywhere, but nowhere to such perfection and beauty as on the natural grounds about "The Hermitage." I question if the Crimson Rambler Roses, referred to in the September number, could possess a greater charm for the true lover of nature than those cedars, arrayed, as I saw them, in their autumn dress of living green.

FRUIT AT SAULT STE. MARIE

A FEW FACTS CONCERNING FRUIT GROWING IN THE NORTH, TAKEN BY AN INTERESTED OBSERVER AT THE FALL SHOW, SAULT STE. MARIE, OCTOBER 6TH.

THE first thing that takes the eye of a stranger on approaching the tables—that is one who is somewhat familiar with fruit exhibits in Eastern Ontario—is the blaze of color. He will say to himself, these apples are much higher colored than ours are. Then the very large will likely catch the eye. These will be found to be Alexanders, an apple particularly adapted to northern climates, and grown here without that objectionable coarseness of flesh common in what is usually considered more favorable localities. Gideon, an apple not much in favor in the east, is a valuable and reliable apple here; tree hardy, fruit not subject to decay at the core as when grown

further south. Charlemoff, our best early fall apple, is past its season at this date, but is perhaps the handsomest apple we grow; its only fault is shortness of season. It is better every way than the Yellow Transparent, the trunk of which, notwithstanding its reputed hardness, is liable to sunscald. Duchess also is a superior apple as grown in the north. In speaking of this apple, an interesting discussion took place among the exhibitors as to whether there were two distinct varieties of this fruit, one with color, more solid, and which will keep two weeks longer than the other, the color of which is more approaching the St. Lawrence. This apple has been more exten-

sively planted than any other, has proved itself the hardiest of all apples, and brought in more money than any other. At this date it is at its best for eating from hand, but for some reason it is keeping longer than usual this year. It is usually past its best by Oct. 1st. Yellow Transparent makes a good appearance on the tables, but is past its season now. Many other fall varieties are shown, but those mentioned are most in evidence.

In winter apples, and we call it a winter apple here, notwithstanding the decision of the Horticultural Society, Wealthy still stands ahead of all others. It has perhaps the fewest faults of any winter apple we have. It is not quite perfect, has a habit of growing its fruit out at the end of its long, slender branches, and we want an apple of just as good quality and productiveness that will keep just a little longer. Wallbridge is the most highly colored apple we have, a long keeper, but that is about all that can be said in its favor, except that it is quite hardy. Scott's Winter, a pretty little apple, is too small; a great many go to a barrel. Golden Russett is larger, and will average nearly as much to the tree as the former, and is more durable. Ben Davis, as grown here, has nothing to recommend it. The appearance is enough to give one a fit of indigestion. I do not think it will ever amount to anything here. Tallman Sweet is coming to the front, and in its own place promises well. Longfield is being extensively planted, but has little to recommend it except its extreme productiveness and early bearing, but perhaps more of this variety is being shown than any other. What your late president, Mr. Orr, has been pleased to name, Algoma Seedling, has taken first prize for the last three years shown as any other winter variety not specified, is certainly a large and exceptionally fine apple, keeps until April, quality the best, a regular and heavy bearer, with dark green

foliage, its fruit being well distributed along the branches. I will see that a few specimens are forwarded to Walkerton in time for your meeting. If it is a seedling, it should be propagated, for we have no apple that so completely fills the bill for winter. If want of color is not against it, it is absolutely faultless. Some of your best apples are conspicuous by their absence here. 'Spy, King and Baldwin, I am pretty safe to say, have never produced a single specimen in this part of Algoma, at least I have never seen any and do not know of anyone who has. The dead tree with the tag attached is all that remains of the many dollars that have been sent east for them. Taken altogether, the apple exhibit at Sault Ste. Marie would compare favorably with any of greater size along the lower lakes. The collections, of which there were several, numbered about thirty varieties, and not a scaly apple to be seen, our summer, from June, being very dry and unfavorable for the growth of scab.

Pears I may dispose of at once by saying we were not in it up to this time; failure has been the result of our efforts. A few specimens were on exhibition, but I do not think you would call them XX; still, we hope to do better in the future.

Plums were very good, and although rather past the season, some remarkably good fruit was shown, among which I notice Reine Claude and several of the Japans; in fact the majority were Burbank and Ogon. Several Americans were noticeable, but their appearances were against them.

Of grapes there was a wonderfully good display, not at all to compare with anything south of us, but enough to show that it is quite possible to ripen anything not later than Concord around Sault Ste. Marie.

Crab apples, although not a very desirable fruit to grow in Eastern Ontario, are valuable here. If I may judge from the few barrels sent up to Sault Ste. Marie from the east, the sooner you quit trying to grow

them the better it will be for your own credit. I think the plates of Hyslop and Martha shown here would be rather a revelation to you. On making a careful exami-

nation of all fruit shown, I failed to see any vestage of scab or worm.

Algoma Fruit Station,

C. YOUNG.

St. Joseph's Island.

CARE OF BLACK RASPBERRIES

A BERRY CANE WILL BEAR ONLY ONCE.

THE crop of black raspberries depends on the new growth made this year.

It is a surprising fact—one hardly to be believed, but true,—that not one man in five among farmers knows that a berry cane only bears once. I have seen men, otherwise quite intelligent, trimming up the old canes, thinking to get a second crop. Even growers of small fruits only half realize the fact, and leave the canes to grow as they will during the summer without pruning or any care.

The long, overhanging cane sways in the wind and breaks beneath the snow, the grower saying: "I guess we will have to stake and wire them," which is a needless expense if they are properly cared for. Some experiment stations claim to find a diminished vigor where summer pruning is practiced. So the tendency seems to be toward "the survival of the fittest" plan and a "go as you please" policy.

After growing raspberries for twenty years with success, and picking seven consecutive good crops from one field. I do not take any stock in these mentioned plans. I think it possible to keep a field in good heart and make it bear fine crops for many years by careful attention to the growing wood, to the diseased plants, and with plenty of manure. A single handful of high-grade fertilizer per hill only takes two or three hundred pounds, and if applied around the hill in spring is paid for in berries; but

I apply it for the promotion of new growth. It's not too late now. Plowing the soil toward the plants and then harrowing it down level kills weeds and hastens growth. Pinching off the soft green end stops the upward tendency and causes the side buds to start. A pinched back, tree shaped, low bush is well balanced, and neither snow nor wind will affect it; but the main object is to increase the fruit bearing surface. If let alone you have one long cane. Pinched off while soft, green and growing, at two feet high, you probably will have five good laterals, or five times the surface for fruit to grow on.

Cutting back the laterals in spring to eighteen inches will cause them to throw out side shoots, and you have six on each side lateral, or thirty spurs for fruit bearing, as against the one long cane when not pruned. The objection of too much fruit, small in size, is overcome if the land is rich enough. The objection of loss of vigor, by check from pruning, is also overcome by more fertility. It is difficult to see how cutting out the soft first inch or two with thumb and fingers, should shock the plant. Nature prunes with wind, hailstorms and insects which girdle the top, lay an egg and stop all growth above the girdling.

We grow berries for the money, not for fun; and to make them profitable we must have "quarts of 'em" per acre, and a place for them to hang. Our method is to cut

out and burn the old wood as soon as possible after the crop is harvested. Then the plant food obtained by the roots can all be applied to new growth, and none of it goes to mature the old wood and leaves. By removing the old wood we prevent further maturing of blight, parasites, and also get rid of insect foes of all kinds. Much more can be done by preventing the spread of disease than by applying remedies to cure it. The old wood out of the way, the new has a chance to grow without being crowded out of shape, and is not pushed over into the row. The new growth at this time does not take the room it does later, and the horse and cultivator can be run closer to the row. Immediately after cutting out the old canes—in August in this section—we usually have

hot weather, and the cultivation will kill most of the weeds without much hand labor, and one day then will accomplish more than three in the spring.

When set in rows both ways, even at three feet, the narrow way, one can get through with horse and cultivator at this time, reducing the time required to work out the weeds to a minimum, because the new growth is small. The rapid growth resulting from the cultivation given usually brings the side branches to the ground, and the tips can be set in for plants. The sale of these will sometimes pay the whole expense of caring for the patch. If no plants are wanted, after the leaves drop trim back to the bend, which will leave them stiff and unbreakable.—*N. Y. Tribune Farmer.*

AGE OF THE ORANGE TREE.

Major D. F. Allan, Grimsby, kindly sends us the following which may interest some of the the Canadian Horticulturist readers :

In the orangery at Versailles is an orange tree raised from seed sown in 1421.

There is another in the yard of the convent of St. Salvina, at Rome, said to have been

planted by St. Dominic in 1200.

In the neighborhood of Finale is an orange tree which bears nearly 8,000 oranges in a single year.

There are in Holland many orange trees which have been in the family 200 and 300 years ; one at Versailles has on it this inscription, "Serre en 1421."

THE WEALTHY APPLE.

SIR,—The Wealthy is a good deal grown here for local use and is only an October apple. It will keep in a sort of way till Christmas but gets very soft and tasteless, and is really past its best by the first part of November. The McIntosh seems to take better than the Fameuse and keeps a little better, keeping all right till March, while the

Fameuse loses flavor after January ; but the Pewaukee will keep till the new crop, and is good from 1st December. It is not quite up to McIntosh or Fameuse but is not far behind as a dessert apple. I have kept it in first class shape with just ordinary care in a dry cellar, till the middle of June.

A. HARKNESS.



EDITORIAL NOTES

THE PARK IDEAL

JUST now when our American cousins are waking up high ideals of landscape beauty, and when nearly every city is planning on a park system which shall give their people the pleasure of country drives almost in the very centres of commercial life, it becomes us in Canada to shake off our lethargy and see to it that we are not behind in this splendid movement.

We have already referred to the work undertaken by the Hamilton Horticultural Society in connection with the League of Civic Improvement, but it is time the city fathers began to plan greater things. Dundurn

Park and the Gore Park, for example, have long been a credit to that city, but these are too limited for a growing city; and it would be a happy movement if a more extended area could be secured along the water ways to the west, which could in time be laid out in beautiful drives, and possibly connected with Dundurn by an avenue which would afford a beautiful outing for the citizens. Too often, in the use of water, beauty is sacrificed to utility, which in a park is a wrong ideal. For example, figure 2487 shows a cheap and unattractive iron bridge, which from the utilitarian point of view would be most desirable, but in a park would be entirely out of keeping with its surroundings.



FIG. 2487. UTILITARAIN, BUT NOT ARTISTIC.



FIG. 2488. A COMBINATION OF USE AND BEAUTY.



FIG. 2489. VIEW IN DUNDURN PARK, HAMILTON.

To one familiar with the beautiful and artistic Suspension Bridge over the Niagara river, what a feeling of depression comes in viewing the present clumsy structure, which is entirely devoid of beauty ; however, in this case beauty is secondary to utility, and we must submit without criticism ; but in the park it is entirely different, for here the highest ideal is that which most conforms to beauty and harmony. How much better for example, such a bridge as that represented in figure 2488 for crossing a stream in a park ; a structure that combines beauty with durability, and will never offend the eye of the most artistic visitor.

THE VALUE OF PARKS.

EVEN from a financial point of view, the citizens of Canadian towns and cities

can no longer afford to overlook the public park. Not only is the town itself made more attractive to a wealthy class of buyers, and to people of cultivated taste, but the value of real estate will also be advanced by attention to the beautiful in landscape surroundings. Kelsey in *American Gardening* says on the subject :

“ Few persons, outside of those having given these subjects special attention, appreciate to what extent the development of a park system accentuates the æsthetic and material growth of an urban community, or how, in order to secure the best results, the improvements should be carried forward under a comprehensive plan and fixed purpose until the end is attained and the system well established.”

The experience of almost every growing



FIG. 2490. THE ARCHWAY, DUNLURN PARK, HAMILTON.

city, both in this country and in Europe, vindicates the correctness of this statement. While the work of creating a park system is going on and the costly improvements are under way there is invariably criticism and honest difference in conviction as to the plans and the advisability of the expenditures. But when the work is once accomplished and the people have before them the object lesson of a continuous park and parkway development, uniting the varied attractions and benefits into a harmonious whole, doubts and misgivings give way to civic pride, complaints to compliments, and the fear of unreasonable cost changes to gratification at the result. The time has passed

when public funds well spent in a park system can be considered other than advantageously invested, any more than county or municipal expenditure for roads, schools, hospitals and city buildings can be deemed extravagances.

In all metropolitan or suburban districts, park attractions for residential and industrial sections are now great factors and constantly growing features of the times. They are necessities, not luxuries, not for any class or privileged few, but are priceless possessions for all the people and the one

place where neither social, financial, intellectual nor political distinctions give any one citizen rights, prerogatives or privileges over another.

BEAUTIFY THE SCHOOL GROUNDS

TO a Canadian whose taste for landscape gardening has been cultivated by travelling, it is very disappointing to observe



FIG. 2491. A BIT OF THE CASILE AND LAWN, DUNDURN PARK, HAMILTON.

the extreme neglect that characterizes the trustees of our town and country school yards. Here is the place where the ideals of the children are formed; every day they visit these yards and they become as familiar with them as with those of their homes; the period is the formative one of their tastes, and in maturer years these ideals of garden and lawn, formed in childhood, will be realized in their own home surroundings.

It is well that Mr.

Gilchrist, in his address to Horticultural Societies, has been emphasizing the necessity

of an improvement in school surroundings, and we shall be pleased to give hints from

time to time in this journal for such work. The cuts on opposite page will impress the reader with the change that may be wrought by a little care in laying out and planting the grounds about even the humblest school building in the country; Fig. 2495, showing a neglected school yard, which, we regret to say, is only too often true to



FIG. 2492. MAPLE TERRACE, DUNDURN PARK, HAMILTON.



FIG. 2493. LANDSDOWNE PARK, HAMILTON.

the conditions that prevail at present in rural school sections; while Fig. 2496 shows what a desirable change a little taste in planning and planting will produce.

BOYS' AND GIRLS' GARDENS.

THERE is a wide-spread movement to develop a taste for gardening in children. In Dayton, Ohio, forty boys' gardens were established

in 1900, and the number was increased in 1901 to seventy-four, each 10 x 130 feet. A course of two years' garden-

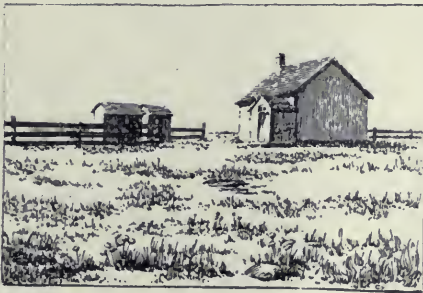


FIG. 2495. A COUNTRY SCHOOL HOUSE WITH NEGLECTED SURROUNDINGS.

ing is mapped out, and each boy completing the course gets a certificate. Clapp, chairman of a committee of the Massachusetts Horticultural Society, says, "The result of this garden work at Dayton has been most extraordinary. Slidertown



FIG. 2494. WOODLAND PARK, HAMILTON.

was one of the worst parts of the city, now it is one of the very best, and its change of name to South Park is indicative of the change wrought in every condition. Three of the worst boys were got rid of, and the rest were formed into clubs and brigades, and were given gardens and taught to respect themselves and the rights of others. Then the land rose from \$300 a lot to three times that amount; and the \$3,500 put into garden work carried on by the boys is said



FIG. 2496. THE SAME IMPROVED.

to be the best investment for the money that the N. C. R. Company ever made."

The land, tools, seeds and instructor were furnished by the Company. Most of the boys supplied their families with vegetables during the summer months, and many earned enough money by the sale of vegetables not needed at home to pay for their school books.

The boys were given a supper, ten money

prizes amounting to \$35, five prizes each in the form of the Youth's Companion for a year, bronze medals and a stereopticon lecture by the president, Mr. Patterson.

Such an example is most worthy of imitation by other companies and associations having in view the uplifting and proper training of boys.



FIG. 2497. CENTRAL SCHOOL, HAMILTON.

NEPHROLEPSIS PIERSONII.



FIG. 2498. NEPHROLEPSIS PIERSONII.
THE NEW VARIETY OF BOSTON SWORD FERN.

THIS new and distinct type of this already popular fern promises to eclipse all of the older varieties in beauty and popular favor. Several of these plants,

as shown in the accompanying cut, were exhibited at the recent Horticultural exhibit held at Hamilton in connection with the Fifth Convention of the Canadian Horticultural Association, of which an account appeared in the last issue of the journal. It is needless for me to say the plants were much admired, the beautiful feathery appearance of the pinnace on either side of the main stem giving it a most attractive appearance. Mr. Pierson, who was present at the exhibit above mentioned, is to be congratulated on the introduction of this decidedly pretty and novel addition to these already popular and highly decorative class of ferns. Mr. Pierson informed me that he was not certain whether this new variety was a seedling or only a distinct variation of type, as its discovery was purely accidental. I am indebted to Mr. Jas. Gadsby, of Hamilton, for the accompanying photo of his fern.

W. HUNT, O. A. C., Guelph, Ont.

THE CARE OF PLANTS IN THE WINDOW.

IN order to grow plants well in the house they must have plenty of light. Unless this can be given, they will be spindling and weak, and there will be few, if any, flowers, and these will be inferior.

The best exposure is a southern one; the next best an eastern one. A south window is the one in which to grow geraniums, lantanas, heliotropes, and all plants fond of much sunshine, while the eastern one is better for begonias, fuschias, and such plants as care more for the sun in the early part of the day than they do for it after its rays become more intense. A west window gives too much heat unless shaded considerably, but it is better than no window at all, and if

you have no other to give your plants, don't go without them. A curtain of thin muslin will temper the heat greatly, and vines can be trained over the glass in such a way as to break the fierceness of the sun's rays. A north window is not suited to the needs of flowering plants, but some which are grown solely for foliage can be kept there. Ferns, palms, aspidistra, ficus and lycopodiums will do quite as well there as in a window exposed to the sun. English Ivy can be trained about it. Tradescantia, in baskets, can be hung up in it, and thus it can be made beautiful without flowers if you have a love for "green things growing."—*Vick's Magazine*.

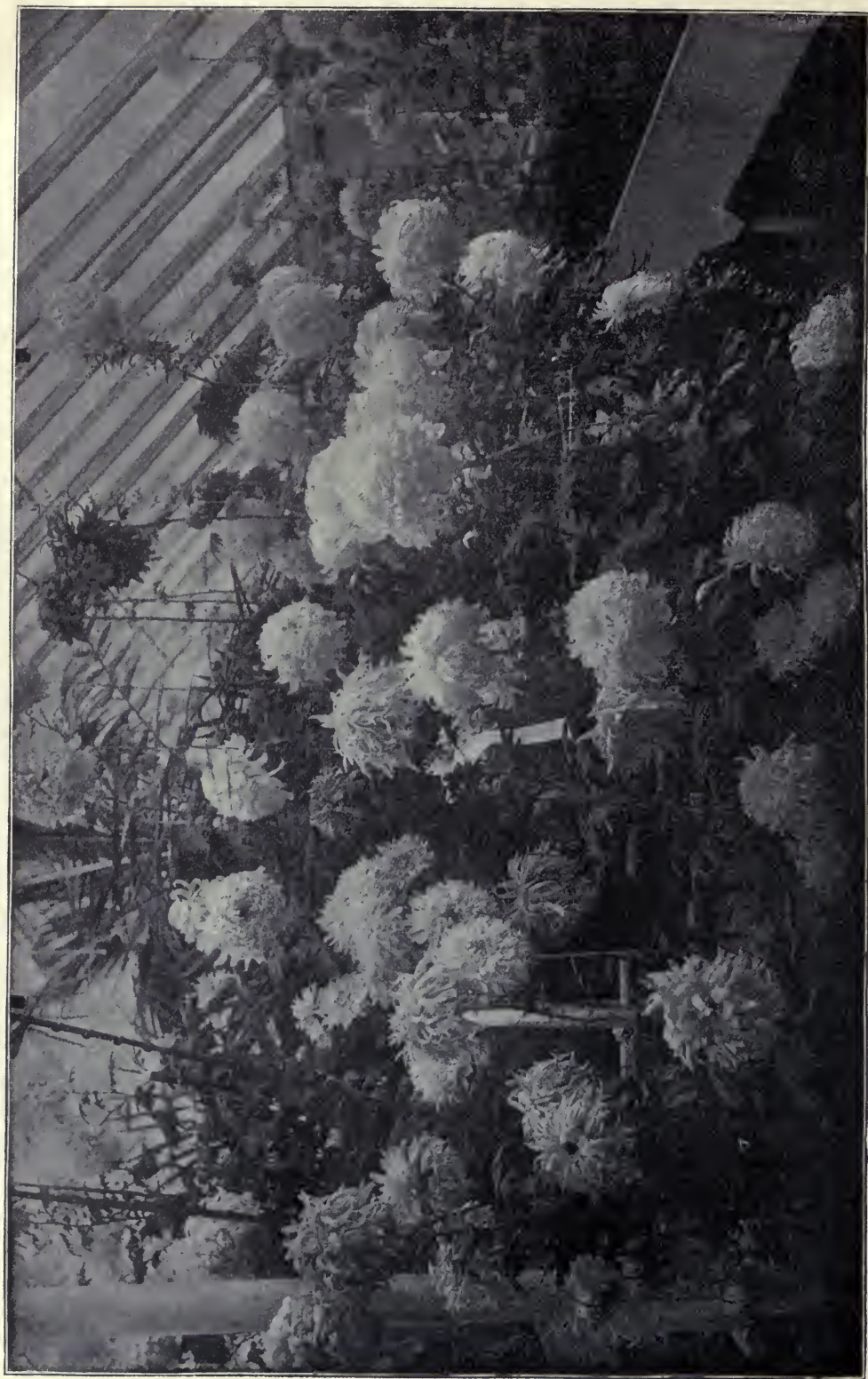


FIG. 2499. CHRYSANTHEMUMS AT THE O. A. C., GUELPH.

CHRYSANTHEMUMS

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH, ONT.

THESE glorious autumn flowers have probably, during the past, season been more resplendent in their gorgeous colors and beautifully formed blossoms than for many years past. The comparatively low summer temperature and moist atmospheric conditions that have prevailed during the usually hot months of July and August have doubtless been responsible, in a very large measure, for the success that has been attained in chrysanthemum culture during the season of 1902, wherever these popular autumn favorites have been grown. Very little is heard of that "bane" of the chrysanthemum, viz., the "rust"; a fact that goes to prove that a moderate temperature, a moist atmospheric condition, as well as good culture, are conditions that best suit the chrysanthemum to resist the development of this destructive disease.

Although the season is nearly over, a few notes and comments on some of the varieties suitable more particularly for window plants may perhaps be acceptable, as it is a matter of great difficulty even for the professional grower to select from among the host of beautiful varieties available those that are best suited for growing for window and house decorative purposes.

The chief points to be considered in this respect are not only the size, form, and color of the flowers; but habit of growth and a robust constitution, as well as early or late flowering propensities, are points that must be considered when selecting varieties for the purpose before mentioned.

The keeping qualities of the flower has also to be taken into consideration. Sub-



FIG. 2500. ROSE TRAVENA.
MRS. ROBT. CRAIG. MILE. MARIE H.
JUDGE HOITT.

stance and form of the flower are important factors in this respect. The short petalled and compact flowering types are, as a rule, the best varieties to resist premature fading and decay. The small flowering pompon varieties are usually varieties that hold their blossoms for a long time in good condition. The pompon variety, Rose Trevena, Fig. 2500, shows a spike of these miniature chrysanthemums—that are such favorites with many flower lovers—taken from a plant that had been in flower for over three weeks, and as seen in the photo the flowers are still fresh and perfect in form on the spike. The plant that this spike was taken from has been greatly admired, covered as its several branches were with its dainty little pink blossoms, nearly the whole length of the stems, which are only about 18 inches high. If only one pompon be grown let it



FIG. 2501. MRS. L. CANNING.

be the variety shown, *Rose Trevena*, as it is a good grower and is so profuse in flowering. Other desirable pompon varieties are *Golden Fleece* and *Snowdrop*.

The Chinese Anemone flowered varieties are, from the peculiar formation of their flowers, great favorites with many admirers of the chrysanthemum. In most of these the outer florets are long and regularly arranged, whilst the centre florets are short, resembling quills, and are thickly set.

The Japanese Anemone flowered varieties are very showy and attractive, but as a rule are tall-growing plants. *Judge Hoitt* and *Surprise* are two good varieties of this type, a fair specimen of the flower of the former is shown underneath the pompon variety in Fig. 2500. In color it is a shell pink, whilst *Surprise* is paler in color, fading almost to a creamy white. Both are good varieties of this type, and early flowering.

The incurve form of flower is probably the

most popular type of chrysanthemum. A perfect incurve flower should be nearly globular in form, and as its name indicates, the floret should all curve inwards towards the centre or apex of the flower. Amongst the many varieties of incurves, *Major Bonaffon* (bright yellow), *Ivory* (white), *Mrs. Robert Craig* (white, see Fig. 2500), and *Mrs. Col. Goodman* (blush pink), see Fig. 2502, are good Chinese and Japanese incurve varieties that will give a good variety of color as well as plants of a dwarf growing habit, giving good flowering results usually under ordinary conditions and treatment. *Ada Spaulding* is also a good variety of dwarf habit, and has pretty cream colored flowers.

Amongst what are known as Japanese varieties, of irregular form, both in florets and outline, are the following varieties given as nearly as possible in rotation according to the time of flowering; 1st, *Glory of Pacific*



FIG. 2502. MRS. COL. GOODMAN.

(pink), Midge (white), Fred. Walz (pale pink), Golden Gate (bright yellow), Mutual Friend (white), W. H. Chadwick (yellow), Defender (dark crimson), Mlle. Marie Hoste (white), Fig. 2500, and W. H. Lincoln (bright yellow). The latter is an old variety, but still one of the best and latest, and is of specially good habit of growth and flowering character for a window or conservatory.

Amongst reflexed varieties for the window, Mrs. L. Canning (white), Fig. 2501, and Miss Elma O'Farrell will give good satisfaction. The latter is a late, large flowering variety of a peculiar shade of salmon rose, very odd and pretty.

In writing this article on these popular autumn flowers, many perhaps equally good varieties both new and old, have of necessity in so short a list to be omitted. But those that are mentioned have proved to be varieties that have invariably, from year to year, shown good and attractive points, under conditions that many other varieties perhaps more attractive in many ways, have proved under test to be partial failures.

In a future paper I hope to have something to say on the culture and treatment of the chrysanthemum from the time the old plants are out of flower until flowering time again.

HELIANTHUS MULTIFLORUS.

OUR engraving is a good representation, minus the color, of the *Helianthus multiflorus*, as grown this summer at Maplehurst. We have for some years past been charmed with the Golden Glow *Rudbeckia*, but this comes a little later in the season, and when grown in clumps has a most charming effect, quite equal, if not superior to the former. It is not quite so tall, grows more compact, and its aster-like flowers are more double and striking in effect.

The sunflower family to which it belongs contains, in addition to the common annual sunflower, about fifteen hardy herbaceous perennial plants, and to one of these our subject belongs, viz., *H. decapetalus*, a species which is found in most soils from Québec to Georgia. Under cultivation several beautiful garden varieties have been produced, some of them with quilled florets, like a cactus dahlia, and, altogether, the multiflorus varieties are the most popular of all perennial sunflowers. They are quite dwarf compared with the annual sunflowers, reaching only a height of from two to five feet. In our opinion, no collection of hardy perennials should omit *Helianthus multiflorus* flore pleno, and, to get the best effect, we

would advise the planting of them in clumps of a half dozen in the perennial border.



FIG. 2503. *HELIANTHUS MULTIFLORUS*

THE HARDY PERENNIAL BORDER

PAPER READ BEFORE THE C. H. A. CONVENTION BY

MR. A. ALEXANDER,

PRESIDENT OF THE HAMILTON HORTICULTURAL SOCIETY.



FIG. 2504. SAMUEL AYLETT,
Supt. of Trade Exhibit, C. H. A.

THE subject of hardy herbaceous plants and their use in the ornamentation of private grounds and public parks has received a good deal of attention during the past few years, and the numbers of new species and varieties of these plants suitable for the hardy perennial border are being multiplied at a rapid rate.

When your Vice-President, Mr. C. M. Webster, asked me to prepare something to read before this convention I felt it would be presumptuous in an amateur to stand up before a number of practical and intelligent horticulturists and tell them anything they did not already know about hardy plants. However, as he told me something brief,

just to introduce the subject for discussion would do, I agreed. I was the more willing to do this as the earliest and sunniest recollections I have in connections with flowers hover over the borders and beds of my childhood home, which were filled exclusively with old fashioned perennials. There were lilies stately and tall in large groups, great masses of Sweet William, primulas in endless variety, scarlet lychnis, saxifraga, phlox, pæonies, hollyhocks and lots of others too numerous to mention. These were all interesting as they one by one opened their blossoms in the floral procession, but to me there was and is still in the yearly miracle of their re-awakening, in watching the tips pierc-



FIG. 2505. T. LAWSON,
Secretary Hamilton Gardeners' and Florists' Club.



FIG. 2506. CHAS. M. WEBSTER,
1st Vice-President, C. H. A.

ing the soil, in their varied modes of enfold-
ing their first leaves with such a variety of
color too, from the tenderest green to deep
crimson, an added pleasure not derived
from ordinary bedding plants. I consider
this a strong argument in favor of the cultiva-
tion of these hardy flowers that they afford
so much joy in watching their yearly appear-
ance as soon as the icy grasp of winter is
relaxed.

While I do not say that hardy perennials
will ever take the place of ordinary bedding
plants for the decoration of public or
private parks or grounds, or can be used
so as to procure the striking color affects
secured by the geranium or coleus and others,
still I assert that any one possessed only of
a small garden or whose acres are filled with
beautiful flowers of the hardy sort, can have
from early spring to autumn frosts, a con-
tinuous succession of bloom.

We can have them suited to every situa-
tion, sunshine or shade and to nearly every
kind of soil. Not only so, but when once
established in our gardens they stay with us

forever if we are fairly good to them, in-
creasing in bulk and beauty from year to
year. We have them gay as the oriental
poppy, and showy as the pæonies; while
many of them are excellent as cut flowers, as
the single and double flowering pyreth-
rums, so many beautiful hybrids of which
are being introduced. Need I name the Iris
family with its varied classes all exquisi-
tely beautiful; the aquilegias in infinite var-
iety, from our own native variety to the
Rocky Mountain one with its heavenly blue
and immaculate white, so blue and so white,
as if it had been painted when gazing into
the azure from its Rocky Mountain home;
the campanulas, all dainty and general fav-
orites; the larkspurs too, giving us color and
stately growth from pure white through
every gradation of color from blue to red.
Many of these hardy plants are very fragrant,
such as the sweet valerian and many others
quite as hardy.



FIG. 2507. WHITE CAMPANULA, IN MR.
ALEXANDER'S GARDEN.



FIG. 2508. *DICENTRA CANADENSE* AT MR. ALEXANDER'S.

I have no intention of wearying you with lists of names of these hardy plants. The best and most useful list that I have seen is that issued by the Experimental Farm at Ottawa, consisting of 100 varieties and compiled by Mr. Macoun, the horticulturist there in 1897.

Just a word about the border itself. Hardy perennials I find thrive best in good ground with lots of rotted leaves worked into it. The thrift of the plants in such soil is so marked as to well warrant them getting it.

These plants, many of them at least, increase so fast and spread so much that they require to be lifted, divided and replanted every three or four years. Some of them, such



FIG. 2509. *IBERIS GILBERTICA*, (CANDYPUFT.)

as the perennial phlox, so exhaust the soil in their immediate neighborhood that they are better if their position is changed every two years. The pæonies and some others are better not to be moved. Every fourth year I trench my perennial borders. I proceed as follows: I take out a trench two spades deep and two spades wide, wheeling the soil to the other end where the operation will finish. I then mark off another space equal in width to the trench made and with my spade I take off about two inches of the top soil and throw it into the bottom of the trench; on this I put a good coating of fresh manure, tree leaves or the product of a rubbish heap of vegetable matter of any



FIG. 2510. HARDY FLOWER BORDER, AT MR. ALEXANDER'S.

kind, then I throw upon this a spade deep of the earth from the second trench, on the top of this I spread some well rotted manure or humus of any kind, then on this I throw up another spade deep of the soil left in the trench; when this is done we have a second trench, the same depth and width as the first, and so I proceed until I reach the end of the border, where I find the earth taken out of the first trench to fill up the last with, its two layers of manure or other enriching material sandwiched twice. You will see that this really means the turning



FIG. 2511. HARDY FLOWER BORDER IN GARDEN OF MR. A. ALEXANDER, HAMILTON.

upside down of the whole border to the depth of about 18 inches and enriched with two layers of manure, one near the bottom one and one midway up. The reason of putting the fresh and unrotted manure in the bottom and the other higher up is that the plants when replanted will find out and get the benefit of the higher layer of manure the first year, and by the time the roots get down to the lower it will be so decayed that they can appropriate it to their strengthening and beauty and can bid defiance to hot summers and other adverse surroundings for they are feeding on unseen supplies of food and moisture.

Planting is best done in the early spring. It is better to have good clumps or masses of the best of these perennials than to have little bits of every thing you can lay hands on if the ground is limited in extent. I would recommend a very liberal planting of the hardy bulbs, not lilies only, but the scillas and chionodoxa, the snowdrop and crocus, and the Narcissus family should be fully represented. The scillas, and the Glory of the Snow, are most satisfactory and never fail to cheer the border, for they increase and improve from year to year.

I make a liberal use of many of our native plants. What more satisfactory than the

trilliums, the hepatica and the blood root to brighten the border with their pure white and azure blossoms, and the phlox divaricata makes a fine mass of purple lasting for weeks, and many others. Many species of asters are invaluable in the fall months.

We sometimes hear the complaint that a perennial border is an unkempt and unsightly affair as compared with the trim beds filled with greenhouse plants. It is, if not cared for. Plants needing support should have it early, and all flowers that are done blooming should be removed and the soil between the plants kept stirred from time to time.

I hope to see some of the commercial horticulturists of Canada go into this business and present us with a catalogue of these hardy plants as extensive as those issued on the other side of the line. And it would be well if the commissioners of public parks gave this matter some attention and planted borders of these perennials all labelled so that the public could see for themselves and choose for their own gardens and be instructed as well as interested. Much more might



FIG. 2512. FOXGLOVES.

be said on this subject, but I must close. I therefore urge the more general cultivation of hardy plants: It is interesting to watch their development, because there is a touch of home in the coming of the truly hardy varieties of flowers that seem to defy all kinds of abuse and quickly respond to good care, and we watch for them as eagerly as the seasons come and go; because the first cost of them is less than the tenderer and more aristocratic bedding plants; because of the greater variety and the longer flowering period we can have each year by their use; and they are less trouble than the more tender sorts and increase from year to year.



FIG. 2513. ROCKET, (VERY FRAGRANT), SHOWING THE EFFECT OF MASSES, AS COMPARED WITH SINGLE FLOWERS, AT MR. ALEXANDER'S.

PROFIT IN THE BAY WINDOW.

AN almost indispensable appurtenance to the modern house is the bay window, and yet in the majority of homes it is either a vacant corner, or else is used as a "plant hospital." A few sickly, unsightly plants of no particular variety are considered sufficient furnishing for what might be the most attractive part of the room. Not only may the bay window be made "a thing of beauty and a joy forever" but it may become a source of profit if the owner so desires.

There are greenhouses and several floral companies in the town in which I live, but, nevertheless, a gentleman near me receives an average of nearly \$1 per day from his bay window. He devotes the greater part of the window to carnations, and a beautiful display they make. There is a ready demand for all he can raise, and the care and cultivation of the plants affords him great pleasure, as well as a fair profit. The cultivation of the carnations is very simple. Roots may be obtained from cuttings made at any time during the fall, winter, or early spring months. The roots should be set in

the ground early in the spring, at about the season that lettuce and other early hardy vegetables are put in the ground. They should be set in soil that is well drained—as the carnation does not take kindly to a wet soil—in rows ten inches apart and eight inches apart in the row. The flower shoots, as they appear, should be cut back till the latter part of September, when they should be placed in the boxes or pots they are to occupy through the winter, though they should still be left out as long as the weather is mild.

Although there are many hundreds of varieties, but few have been found adapted to window culture. Among the white varieties the Degraw and Maimie are best adapted to window growing. The La Purite, carmine, and Astoria, yellow, are also hardy varieties and take kindly to cultivation. A temperature of 60 degrees is sufficient for the production of these flowers. The soil should be rich and mellow and the plants kept free from the green fly and other plant insects.—*American Agriculturist*.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrears must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

MONSTER MAP OF THE UNITED STATES.

SPACE has been allotted the U. S. Department of Agriculture for a great garden map of the United States, of about two acres in extent. The different state laws will be marked by walks of red gravel, so that from the Agricultural Building this map would be like a bird's-eye view of the United States; and a visitor walking on the paths, would, so far as vegetation is concerned, be walking through the country. This will certainly be a novel exhibit.

of this young society, which has now been five years in existence. Among the interesting papers read we noticed one on the "Judging of Vegetables and Roots," which we hope to publish next summer in time to be of use to our societies at the time of their flower and vegetable shows. Mr. Melvin Bartlett, Box 438, Winnipeg, is the Secretary.

MR. C. M. WEBSTER, of Hamilton, in speaking of the adaptability of our climate for rose-growing, says :

"There are after all but few who realize the possibilities of rose culture in Canada. We have received glowing accounts of rose growing in the Maritime provinces and from Newfoundland, where by reason of the cool

THE report of the Western Horticultural Society for 1901-2 is to hand, and its enlarged size shows the progress and growth

moist summer and heavy snow protection in the winter, roses of all kinds thrive unusually well. In the northern part of Ontario and Quebec the hardy roses have in many cases given amazing results, the heavy protection of snow often bringing the plants through in better condition than is seen in the more southern sections. Throughout the other portion of Ontario, and particularly in the Niagara Peninsula, the ever-blooming roses give the utmost satisfaction out of doors and can be safely wintered with very little trouble. On the coast of British Columbia the paradise for ever-blooming roses is found, and it is a matter of surprise to many Canadians that one portion of the country yields perfect growing roses often as late as Christmas Day. Perhaps a greater surprise in the matter of plant growth will yet come from the great

Canadian West. It has already been proven that tea roses there grow with most unusual vigor, and constitute one of the very best summer bedding plants. We have many letters from that section that will testify to beds of tender roses enduring the severe winter safely covered by the protecting snow, and breaking into early growth and bloom with scarcely the loss of a single plant. Success in rose growing has attended trials in North Alberta and the province of Saskatchewan, and we heard some years ago from a gentleman stationed at one of the Hudson Bay Company's posts on the shore of Hudson Bay of the wonderful success in the cultivation of some roses brought to him from Great Britain. As the possibilities of the Canadian West are revealed, it is plainly evident that we have still much to learn about that section."

Question Drawer

Wheat Wire Worms.

1326. SIR,—I herewith send you some pests called here "yellow wire worms." There are millions of them in the ground, and they devour such seeds as peas, beans, etc., when planted. Those that escape them long enough to become plants, are often killed by having their roots and stalks eaten hollow. Root crops, as potatoes, etc., are ruined by them; also such crops as pumpkins, tomatoes, etc., are filled with them wherever they touch the ground. In one case thirty-five worms were feeding off one tomato berry. Please name the beast and tell me how to exterminate it and you will do a great favor to many.

D. C. CROSBY, Berwick, N. S.

REPLY BY PROF. LOCHHEAD, O. A. C.,
GUELPH.

In reply to the inquiry regarding "yellow" wire-worms, I beg to say that the specimens sent in are the common Wheat Wire-worm, (*Agriotes mancus*). The adult, or Click beetle, deposits its eggs on the roots of grasses in early spring, and may prove very

troublesome for the two or three years that it remains in the larval stage. The larva, or wire-worm, passes the winter in the earth and is troublesome in spring. They cease feeding in the fall, generally before November 1st, and descend several inches into the ground, where they remain in a torpid condition during the winter. In the spring, they come towards the surface with sharpened appetites after their long rest. When they become full grown, which occurs between two and three years, after the eggs are deposited, about July 1st, these Wheat Wire-worms prepare for pupation (their resting stage), by forming a little earthen cell in the soil, usually less than six inches from the surface of the ground. The worms then turn into the little white pupae. They remain in this condition about three weeks,

when they come to the surface in the form of the Click beetles, already referred to. In this condition, they are harmless. It is only in the larval stage that they are injurious, when they will devour mostly any green vegetation which is in direct contact with the ground, such as tomatoes, etc., which often lie on the surface.

A great many experiments have been conducted in trying to combat the wire-worms, but none have been found very practical. However, much can be done in checking the increase of wire-worms by exposing the

pupæ by fall ploughing. In this way the little earthen cells mentioned above, which contain the pupæ, are broken up and the pupæ perish from exposure to the frost and cold of winter. In connection with this fall ploughing, and subsequent cultivation, we also recommend the method of short rotation of crops to farmers who have land badly infested. It is not wise to keep the ground in sod for more than a year or two. Those farmers, as a rule, who practice this method for at least three or four years, are not troubled much with wire-worms.

PROTECT YOUR ORCHARDS AGAINST MICE.

THE time of year has now arrived when we should take precautions against injuries from mice during the coming winter. The experience of many fruit growers, particularly in the eastern part of the province, during last winter, proves that it is very much easier to protect our trees from ravages of mice than it is to remedy the evil when done. Last year, I successfully protected about seven hundred young trees, planted from three to four years ago, with ordinary building paper, cut in strips about eleven inches high and long enough to wrap around the tree once or twice, and tied in the middle with binding twine. Out of the above number of trees wrapped, I only had one injured and that was above the paper.

The mice, in working under the snow follow the ground line, very seldom if ever tunnelling into the snow off the ground.

A man can easily wrap from four to five hundred trees a day, and the cost for paper is a mere trifle. A roll of paper costing 45 cents or 50 cents will wrap about eight hundred trees, planted from two to four years.

I wish to particularly warn fruit growers

against using tar paper for wrapping. I have seen in many cases injury from sunscald just above the paper, not under the paper as is generally supposed by some.

In the spring of the year it is not necessary to remove the building paper. All that is required is for a man to walk through the orchard and cut the string, and the papers will blow off during the summer.

Mice in this vicinity do not seem to be as numerous as at this time last year; however, considering the small cost and short time required for wrapping, I advise all fruit growers to protect their trees against possible injury, for if snow should fall early and remain on the ground until late in the season, the mice would be deprived of their supply of weed seeds, which constitutes a large part of their winter food.

I might say that a convenient way to prepare the paper is to cut it with a sharp knife on a smooth board into pieces (11 x 7 or 8 inches) and place in a market basket for carrying in the orchard.

Maitland,

HAROLD JONES.

Nov. 21st, 1902.



Mr. Rood.

Mr. and Mrs. Lane.
Mrs. Jooste.

W. L. Jooste.

W. W. Moore, Ottawa.
Mrs. Kirkpatrick.Capt. Kirkpatrick,
representing the
Imperial Government.

A VISIT FROM THE SOUTH AFRICAN DELEGATION.

BY G. C. CREELMAN.

THE war had no sooner closed in Egypt than schools and universities sprang up and a season of prosperity set in around Khartoum such as had never been known in that benighted country.

Immediately after peace negotiations were signed, Lord Milner, now in charge of the South African forces, selected a party of Boers and Burghers together with their wives, and started them on a tour of inspection around the world. They covered practically all Canada from Halifax to Vancouver, inspecting everything of interest from a commercial standpoint.

The writer had the privilege of their company in the Province of Ontario for several days, and it is a pleasure for me to state

that I never enjoyed an outing more than that passed in the company of the delegates from South Africa. The entire party, consisting of ladies and gentlemen, seemed to have but one object in view, namely: the gathering of information which would be useful to them on the farms and at home. Every feature in Canadian agriculture was closely studied, questions were asked incessantly regarding our method of work and handling of machinery, the care and management of farm animals, the method of constructing farm buildings, the planting and care of the orchard, the variety of grains and grasses—all of these things interested them, and each night before retiring the gentlemen wrote a complete digest of the day's work.

They visited the Agricultural machinery shops, where binders and reapers are made, carriage and wagon shops, the Agricultural College and the Experimental Farm, but nowhere did they express themselves as being so well pleased as in the orchards of Ontario. In the Niagara district particularly, they were struck with the sight of mile after mile of orchards cleanly cultiva-

ted and the fences removed, looking like one large farm composed of thousands of acres.

These men who fought against the British have laid down their arms, accepting the changed condition, and in a few months will return home, carrying the news of progressive agriculture to their farms and villages.

EXPORT OF INFERIOR FRUIT A LOSS.

THE government agents at Glasgow and Liverpool again draw attention to the great injury that is being done the apple trade by the shipping of inferior fruit. Here is a typical case; 160 barrels of XX Baldwins shipped by Mr. —, of Brighton, Ont., were sold to-day at prices that cannot yield the seller anything. They were so small as to be quite useless for the trade here, in fact they never should have left

Canada. 128 barrels branded Kings were opened up and two-thirds were of a different variety. 9 barrels of this same lot turned out 6 barrels 20 oz. pippins, 1 barrel Ribston and 1 barrel Kings. This wrong naming, though not as serious a matter as fraudulent packing, is very annoying to the trade, and is another illustration of the care that should be used in these details of the apple trade.

APPLE SCAB IN YORK STATE

"Apple scab has," says S. D. Willard, writing in *Country Gentleman*, "developed in Ontario County, N. Y., to an extent rarely before observed in the section. There seems to be little difference in many instances whether trees have been sprayed or not. The fact, however, is clear that not more than one-third to one-half the apples in the immediate vicinity, and particularly Baldwins and Greenings, are fit for barreling. The majority of them are going to the canning

factories. It is a well-known fact that most of the apples raised in the section are made up of Baldwins and Greenings, but this season has demonstrated to the minds of some, at least, that there is a marked difference in varieties as suffering from the pest. My own apples, made up largely of Hubbardston Nonsuch and Boiken, have been almost entirely free from it, particularly the latter variety, which has never shown any disposition to suffer in this way."

BALDWINS, GREENINGS AND YORK IMPERIALS

WOODALL & CO., of Liverpool, write: "Receipts are 61,926 barrels, which is a further increase on late liberal supplies; there is, however, no signs of falling off in the demand, which has throughout been good. What are now coming forward is largely winter stock, but it has been quite a disappointment that so great a proportion should be poor, unattractive fruit. It may be holders are sending seconds with the view of keeping the best till later on; this may be good policy, as, fortunately, our markets have readily taken everything offered, and paid prices in accordance with the value. The range in quotations is very

wide, as while good to fine ruled high, ordinary and inferior, in consequence of the large quantity, are much lower in proportion. This may be instanced in Baldwins, which sold up to 20/ per barrel, and sound inferior down to 7/ per barrel. Greenings, through the uncertainty of how they may turn out, are hopelessly out of favor, and some which appear to be good, reliable parcels do not realize their value. At yesterday's sales the demand was well maintained and closed at 1/ to 2/ decline on ordinary, and about unchanged for good, some Western York Imperials touching 23/ per barrel."

BOOKS FOR FRUIT GROWERS.

FRUIT, FLOWERS, ETC.

Apple Culture, Field Notes on. Bailey. . .	\$0.75
Bulbs and Tuberous Rooted Plants. C. L. Allen. . .	1.50
Bush Fruits Prof. A. Card . . .	1.50
Chrysanthemum Culture. Morton. Cloth. .	1.0
Chrysanthemums, How to Grow. . .	.25
Cider Makers' Handbook. Trowbridge. . .	1.00
Cranberries, Cape Cod. James Webb. Paper40
Cranberry Culture. White. . .	1.00
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A Magazine Thirty Years Old:—The Christmas (December) Number of THE DELINEATOR is also the Thirtieth Anniversary Number.

To do justice to this number, which for beauty and utility touches the highest mark, it would be necessary to print the entire list of contents. It is sufficient to state that in it the best modern writers and artists are generously represented. The book contains over 230 pages, with 34 full-page illustrations, of which 20 are in two or more colors. The magnitude of this December number, for which 728 tons of paper and six tons of ink have been used, may be understood from the fact that 91 presses running 14 hours a day, have been required to print it; the binding alone of the edition of 915,000 copies representing over 20,000,000 sections which had to be gathered individually by human hands.

COMING EVENTS.

- Ontario Fruit Growers' Association, at Walkerton, Dec. 1, 2, 3.
- Agricultural and Experimental Union, at Guelph, Dec. 8, 9.
- Provincial Winter Fair, at Guelph, Dec. 9, 10, 11, and 12.
- Western Dairymen's Association, at Brantford, Jan. 13, 14, 15.
- Eastern Dairymen's Association, at Ottawa.

Notice to Apple Growers

We are preparing for the use of the Department of Agriculture a list of the apple growers of Ontario. Any grower can have his name placed on the list by sending his address to the Secretary together with the number of trees he has in bearing.

G. C. CREELMAN, Secretary.

THE
CANADIAN HORTICULTURIST

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FRUIT GROWERS' ASSOCIATION OF ONTARIO

G. C. CREELMAN, SECRETARY, PARLIAMENT BUILDINGS, TORONTO.

VOLUME XXVI

EDITOR,

LINUS WOOLVERTON, M. A.

1903

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FIG. 2515. RED JUNE (ENLARGED)

THE CANADIAN HORTICULTURIST

JANUARY, 1903

VOLUME XXVI



NUMBER I

THE JAPANESE PLUMS

ALTHOUGH only introduced into America some thirty years, these plums have become very widely disseminated, receiving probably a larger place in our orchards than their real merits deserve.

Many varieties of them have been introduced and pushed upon the attention of the unsuspecting fruit grower, who has too often found in them a sad disappointment. The Wickson for example has been much boomed, and truly it is a large fine variety; but alas! so far in our orchard, and we have planted about 100 trees, it has proved itself most unproductive.

Some of us were discussing the Japan plums at the Industrial, where Mr. John Mitchell, of Clarksburg, Ont., showed a fine collection; and the general agreement was that the following four varieties were the choice of all the Japans to cover the season, viz., Red June, Abundance, Burbank and Chabot.

Mr. S. D. Willard, of Geneva, New York, speaking before Western New York Fruit Growers, said of these Japans, that owing to their early blossoming his crop of Abundance was nearly ruined by spring frosts, when, hearing of the Burbank, he had them all top-worked to the latter variety. "I like," he said, "the Abundance to eat out of hand, but I do not think it is as good a handler and shipper as the Burbank and some of the

others. We have had a good many Burbanks. Some seasons, we have had four or five thousand baskets. A few years ago when looking up something better, if we could, we ran on to the Red June and in conference with a man from Lake Michigan, I learned that side by side with the Burbank, when the spring frost had done injury to to buds of the Burbank, the Red June would come out in good shape. Following up that idea in connection with the fact that it is the earliest of all plums to ripen that I know of, we have planted and fruited them quite largely. We have had them ripe and in good shipping condition on the 21st of July. I made up my mind it was a good plum for the orchard man, and we have found it so. We had something over a thousand baskets of them last year, (1901), and they brought a higher price per basket than any other plums we shipped, except some of the old varieties that came on the market after the other varieties were out of the way."

We have received the following replies to inquiries regarding the behavior of the Red June in various sections of Ontario:—

T. H. RACE, Mitchell:—The only varieties among the Japan plums that I have tried on my grounds here are the *Prunus Simoni*, Wickson, Abundance, and Burbank. The first two I have discarded; the third I have

planted in where I threw all my Lombards out and I value it very highly. The Burbank is my second favorite, though in some respects it is a better plum than the Abundance. Like the Abundance tree the Burbank must be cut back very severely in order to get a good, shapely tree. This is especially important with the Burbank as the yearly growth is very great and the tree is of a sprawling nature. It should be cut back to one foot every year if a good solid top is to be secured. It will take more years to get a good tree, but it will last all the more years and bear its fruit better after it has been secured. On a properly pruned tree the Burbank is a beautiful plum.

A. E. SHERRINGTON, Walkerton :—In my opinion the Red June is going to be one of the most valuable plums for either home use or market, chiefly owing to its earliness. It is a good keeper, and consequently an excellent shipper.

M. PETTIT, Winona :—I have fruited the Red June plum four years. The trees grow well, and bear regular crops from the third year of planting. In quality it is not quite as good as Lombard, which it resembles somewhat in appearance though a little smaller in size. It ripens about the first of August, and being the first plum to ripen it is valuable for market, bringing about double the price of ordinary plums. As soon however as this plum is planted in large quantities, it is a question if it will bring any higher price than the other varieties.

It should be valuable for the family garden, because it extends the season for using fresh plums.

W. W. HILLBORN, Leamington :—I have been very favorably impressed with this variety. The tree is rather more spreading in habit than the Abundance, and seems to be quite productive. The fruit is roundish conical with a distinct point, and rather above medium size. The color is quite dark when fully ripe; the quality is good. It

ripens just before Abundance and on this account it promises to be valuable for market. I have not tested it long enough to know if it has any special weakness.

R. L. HUGGARD, Whitby :—I consider the Red June a profitable early plum. Its color will always attract buyers. The fruit is especially valuable for canning, as the flesh remains firm in cooking, and retains its flavor.

G. C. CASTON, Craighurst :—In reply to your enquiry about the Red June plum, I think very highly of it. It began to bear the second year after planting, and, with the exception of this year, bore regularly. It comes early. I have only one that comes in ahead of it, (the Early Botan) and it bears a heavy crop. I always include the Red June when recommending a list of plums for this section. The quality is, I think, very good. It is large in size and quite handsome. I have no hesitation in recommending it for this section.

CHARLES YOUNG, Richard's Landing : My Red June plum tree bore a few fruits last year, and if I were planting out a plum orchard I would not hesitate to include the Red June. The trees here (St. Joseph's Island) have proved perfectly hardy. I measured some of last year's growth to-day (December 23rd) and it was five feet in length. The trees promise fruit next year.

J. G. MITCHELL, Clarksburg :—I can unhesitatingly endorse the Red June as one of the most desirable of the Japan plums; not so much for its quality, which is only fair as compared with the best Europeans, but for the season in which it ripens. It is the earliest good plum we have. The tree is a strong grower, forming a beautiful symmetrical top and begins to bear the third or fourth year. The fruit is medium to large; color a bright vermillion red, not ripening all at once, but covering about two weeks; season, with us, last of July to middle of August; hardy.

Notes and Comments



FIG. 2516. KIEFFER PEAR TREE, UNPRUNED.

PRUNING KIEFFER PEARS AND JAPAN PLUMS

THE very rapid growth of the Kieffer pear tree renders heroic pruning necessary, otherwise we would have such a mass of wood as to render the tree useless. Many of our most progressive fruit growers cut the wood back most severely, especially during the first five or six years of its growth, first thinning the number of its branches, and then cutting the remaining ones back from one half to two-thirds of

their growth each year. Fig. 2516, from the American Agriculturist, is a very good representation of a Kieffer tree untrimmed, and fig. 2517 of a Kieffer after being thoroughly pruned.

Wickson and Abundance plums have much the same habit of growth as the Kieffer pear, and, in our opinion, need a similar method of pruning; otherwise the young growth will in time be out of all reach, and the branches too long and willowy; but the Burbank is a great sprawler, and of crooked, rampant, tangled habit. This plum needs close shortening in to keep it within any possible bounds.



FIG. 2517. KIEFFER, PRUNED.

FALL PLANTED TREES SHOULD BE CUT BACK.

OF late some have advocated leaving the branches uncut on newly planted trees. This we count a mistake, both from theory and experience. Evaporation takes place from a tree most rapidly from the leaves in summer, and it also continues, though in a much lesser degree, from the wood of its branches all through the winter. A tree that is growing renews the supply from water in the soil, but a newly planted tree is not yet able to do this rapidly enough, unless the wood surface is much lessened by pruning, and the colder the air the more it draws upon the moisture of the tree wood.

Peach, plum and cherry trees are much more inclined to lose moisture rapidly than apple trees, and hence need much closer pruning when set.

For this reason it is usually found unsafe to plant trees in the fall in Ontario; the cold of winter robs them of moisture and consequently of their vitality so rapidly during the time between setting and the spring time, when the rootlets begin to act in supplying moisture, that they are usually much stunted for the first season, if not entirely killed. For these reasons we are advocates of spring planting of trees of all kinds in Ontario, rather than autumn. There is plenty of work in the autumn ploughing and laying out the ground, and getting it in readiness for setting the trees in spring, when, if they come fresh from the nursery ground, with no exposure to dry them, they should continue growing as if they had never been moved.

A SPRAYING OUTFIT.

THE increasing necessity of thorough spraying, year after year, renders it most necessary that we prepare the best apparatus for the work. We have evils

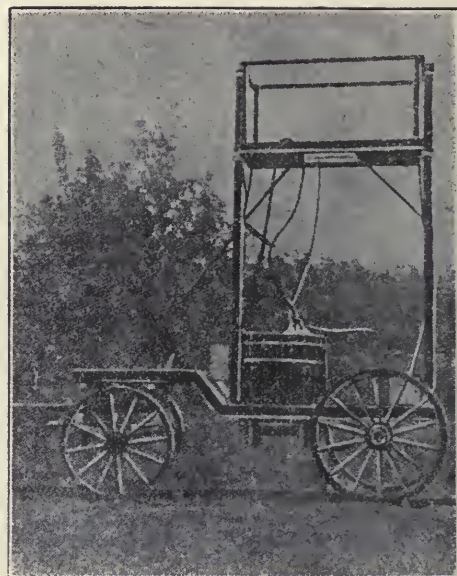


FIG. 2518. A WELL-BUILT SPRAYING OUTFIT.

enough already to fight in codling moth, apple scab, etc., but Mr. G. E. Fisher, San Jose Scale Inspector, warned us at Walkerton that this worst of all evils was spreading rapidly in districts where it has a footing, and that almost every possible means helps its spread, as birds and insects and even the wind. Cold does not prevent its growth, nor check its spread, for in Minneapolis it is known to thrive with a temperature 40° below zero. Fortunately we have in the lime and sulphur treatment, a cheap, effective, safe and easily applied remedy.

Our worthy exchange, the American Agriculturist, gives the accompanying illustration of a well built spraying outfit with the following remarks:

For spraying large trees a platform above the bed of the ordinary wagon is needed. The tops of the trees can be reached with extension rods to which the hose is attached, but such spraying is not satisfactory. Best results are obtained where the spray is



FIG. 2519. THE FRUIT TABLES AT WALKERTON.

directed into the tree from above. A platform can be easily constructed on the bed of a wagon, where only a few trees are to be sprayed.

For large orchards and where several sprayings are necessary, an outfit such as shown in the illustration will be very useful. It was made and is used regularly by a successful fruit grower. The construction is such that the front wheels can be turned short without coming in contact with the frame. The tank holds several barrels of materials. The railings around the top are strong, so that operators will not fall off by frequent starting and stopping.

THE WALKERTON MEETING.

ALTHOUGH removed a long way from the Capital of Ontario, Walkerton has proved itself a place well worthy of the trouble and expense of an annual meeting.

Promptly at 8 o'clock, on Monday evening, Dec. 2nd, President G. C. Caston called the meeting to order, and after welcome

addresses from local gentlemen, gave his annual address, in which he summed up the history of our Association, and indicated work for the future. Addresses were also given by Mr. R. M. Palmer, Horticulturist, of British Columbia, Mr. C. C. James, Deputy Minister of Agriculture, Toronto, and Prof. Hutt, of the O. A. C., Guelph.

THE FRUIT TABLES.

At our Walkerton meeting the fruit exhibit was a special feature. The tables were placed in the basement of the Town Hall, where the air was cool, and attracted many visitors. For the first time our experimenters were invited to contribute experiment station exhibits, and their collections formed a very important part of the exhibit. Even Mr. Charles Young, our experimenter for Algoma, sent down eleven varieties of apples, some of them very fine samples. In addition to his collection of grapes, Mr. M. Pettit, of Winona, showed an immense specimen of the Northern Spy



FIG. 2520. THE FRUIT TABLES AT WALKERTON.

Apple, possibly the largest ever grown in Ontario. It's weight was twenty-four ounces and it measured $14\frac{3}{4}$ inches in circumference. Mr. E. Morris, our director at Fonthill, showed a fine assortment of varieties of apples, among which we noticed the Huntsman's Favorite, an apple grown largely in Illinois, and much in demand in the Illinois markets where it brings double the price per barrel got for Ben Davis. It is large, dark red in color, and of excellent quality. We propose to have it under test at our fruit stations.

The exhibit of British Columbia apples made by Mr. R. M. Palmer, of British Columbia, was also most remarkable, setting before us an example of the perfect samples which we must grow if we would receive the highest prices.

FLORICULTURE.

AN interesting innovation in connection with our annual meeting this year was the division of the programme into two separate sections, both going on at the same

time. The large Council Chamber was set apart for the consideration and discussion of topics belonging to floriculture, and every session was crowded to the full capacity of the hall. These sessions were presided over by Mr. T. H. Race, of Mitchell, and papers or addresses were given by a number of noted florists as well as a talk on roses and rose culture by Mr. Race himself. Among those who contributed to the interest of these floral meetings were Mr. J. S. Scarf, of Woodstock, Mr. R. B. Whyte, of Ottawa, Major Suelgrove, of Cobourg, Mr. C. L. Stephens, of Orillia, Prof. Hutt, of Guelph, and Dr. Fletcher, of Ottawa. These meetings seemed especially interesting to the townspeople, who thronged the hall at every session, and took an active part in all the discussions. A considerable demand was made upon the chairman for information on roses, and we may look for a large expansion in the cultivation of that queen of flowers in the pretty town of Walkerton in the near future. A hearty appreciation and

NOTES AND COMMENTS.

commendation of the innovation was expressed at the close of the last session in a motion by Rev. Mr. Robinson, of the Church of England, seconded by Judge Cline, President of the Walkerton Horticultural Society.

To this Horticultural Section many delegates were sent from affiliated Horticultural Societies, and we predict that this department will so increase in interest that no Horticultural Society in the province can afford to be unrepresented.

SOME EXCEPTIONAL PROFITS IN FRUIT GROWING.

MR. W. T. MACOUN, Horticulturist of the Experimental Farm, Ottawa, reported that he had put up some of the finest of his Wealthy and McIntosh Red apples, and forwarded them to Glasgow in bushel boxes on the 3rd of October, and, even on consignment, he had netted \$1.00 a box, which was much better than he had done in any Ontario market. The writer reported on 100 cases of Kings he had shipped at the same time to Glasgow on consignment, and which had netted \$100.30; and also on 117 cases of Blenheims, forwarded from Beamsville, which had netted \$134!

Mr. D. J. McKinnon reported upon 83 apple trees on two acres of land, mostly Spys and Baldwins, which this year netted him \$500, or \$250 an acre. Such returns from the apple crop must have hit sorely upon those men, who, in recent years, became disgusted with apple growing, and all too hastily dug out the trees, root and branch; trees which had cost perhaps twenty years of cultivation and great outlay of money.

Mr. E. B. Stevenson, Jordan, our Strawberry expert, clapped the climax when he reported upon an acre of ground planted in 1900 to Clyde and Williams strawberry plants, which yielded in 1901 600 crates, or 14,400 quarts of berries, averaging net five

cents each, or \$700; and in 1902 500 crates, or 12,000 quarts, which, at five cents each, gave \$600. He also gave another instance of a man at Jordan who purchased three acres of new land, planted the plot to Williams, Clyde and Michel strawberry plants, and took off it 1,200 crates of berries in 1901, and cleared \$1,100 in cash.

Of course these exceptional profits must not mislead our readers; they are here noted simply to show what can be done by pluck, plod and perseverance, in almost any line of horticulture.

BRIGHT PROSPECTS.

THE near markets are the ones to be worked for these rich returns and not the distant ones, which eat up all the profit in expenses. There is scarcely a town in Ontario, of 1000 inhabitants, which will not give similar profits to the market gardener who will grow a full assortment of fruit and vegetables, and make a tri-weekly round from house to house, with an attractive display upon his wagon.

The great north and north west markets also should be most encouraging to Ontario fruit growers. The millions of acres to the north of the C. P. R., said Mr. C. C. James, Deputy Minister of Agriculture, in his address, will soon be settled with a large population, who will be hungry for our apples, peaches, pears and grapes; and no doubt the export of our fruit to Great Britain will by and by sink into insignificance compared with the demand in the northern and western markets for our fruits. With this great future before us, how evident is the importance of the great educational campaign which this Association has undertaken, through its Secretary, Mr. G. C. Creelman, who has organized local fruit growers' associations in every section, and is sending experts to give instruction regarding the best varieties of fruit, the best methods of cultivating them, and the best way to market them.

BETTER METHODS OF FRUIT SALES NEEDED.

WITHOUT doubt the methods by which the Ontario fruit grower rids himself of his fruit and his profits also, is most reckless. No more haphazard method could well be adopted than is usual, by which unequal quantities are poured into our various markets, without any regard to the needs of that market, and the sale of them forced at once upon arrival. The buyers in such cases divide the spoils, take the fruit at their own prices and retail it at an enormous advance. The poor fruit grower is quite in the dark, he knows nothing of the sacrifice of his fruit until the robbery is completed, and he receives a sales account that staggers him, accompanied by a cheque that perhaps barely covers his expenses.

"I am surprised at your method of selling fruit," said Mr. R. M. Palmer of Victoria, B. C., at our meeting at Walkerton. "You are simply giving away your fruit and ruining the markets both for yourselves and other people. In Winnipeg, when our British Columbia fruit, sold by contract, meets yours shipped on consignment, we we simply stop shipping, knowing that the fruit will henceforth be at the mercy of the buyers who will get it at their own prices. All your debates about lower transportation rates are futile under your present methods of sale," said Mr. Palmer, "for every cent you save in freights will go into the pockets of the consignees, and the poor fruit growers will be no better off."

THE REMEDY.

THE exhibit of British Columbia apples at our Walkerton meeting was certainly wonderful; they were so large and well colored. There were sixteen bushel boxes of them, and the principal varieties were Spy, Hubbardston, Vandevere, Ben Davis, Spitzenburg and Alexander. Some one asked Mr. Palmer how his people

managed the sale of their apples. "One thing is certain," he said, "we do not ship on consignment. We pack our apples in California apple boxes, each sample wrapped in paper, and sell it only on order from buyers in the Northwest." At what prices? we inquired, for we had very vivid recollections of intense disappointment over some wretched returns for boxes we had forwarded on consignment.

"Well, we get orders all the way from Winnipeg, at \$1.25 a box f. o. b. at Victoria; and even at such prices, the buyers are more anxious to buy than growers are to sell."

This led us to ask ourselves, why hurry our fine high grade Spy apples upon an already glutted market, when in proper storage we can hold them six months, and take our time finding buyers. Why in the world can not we, who wish to pack high grade apples, write and invite English and German buyers to purchase on sample? We resolved to try the experiment by holding in storage at Montreal 1000 bushel boxes of the choicest apples, with which to test the British buyer next May, and perhaps we can induce him to buy from us f. o. b. at Montreal. Anything is better than the fearful uncertainty which now attends a sale of a carload of our choicest fruit, when it is forwarded blindly to some consignee, who may already, for all we know, be much overstocked.

MARKETS AND MARKETING.

SELLING on consignment," said Mr. D. J. McKinnon, of Grimsby, "is a good enough way for the careless fruit grower, who will not thin his fruit, fertilize his soil, spray for insects and fungi, nor grade or pack as he ought to do. But some of us want to know how we can make the most of our fruit. There are several methods of sale: (1) *You can sell your orchard in bulk*, an easy way, certainly, probably the easiest: (2) *You can ship on commission*, an easy way too, but often very disappointing; for, very often you pay a commission

to your merchant, and he, finding he has too much fruit, pays a sub-commission to another for assistance in the sale, at the growers' loss : (3) *You can sell to a jobber*, which is often quite satisfactory, and (4) *You can make retail sales all over the country*. This last is the best if you can manage it, but it is a great deal of trouble, and you cannot do it unless you have a great quantity of fruit, and buy largely to fill your orders.

A STANDARD APPLE BOX NEEDED.

I THINK, continued Mr. McKinnon, that we need, not only a standard apple box for export, but we also need legislation preventing the use of the box for anything but No. 1 fruit.

To this Mr. Palmer objected, because, said he, we never use barrels at all in British Columbia, we ship everything in boxes. Well then, said Mr. McKinnon, let it be illegal to use a box printed with red ink for anything but No. 1 apples, and let black ink be used for all cases containing ordinary fruit. The matter of legislation on this point was laid over for a year, but the report of a committee on a standard box was adopted, advising the use of California sizes for Ontario fruit packages, as far as practicable; and also suggesting for 1903 the use of an apple box, measuring 9 inches deep, 12 inches wide, and 18 inches long. This box was favored by Burlington and Grimsby fruit growers, because it would hold $\frac{1}{4}$ of a barrel, an accepted size in foreign markets.

The Grimsby shippers complained that they found themselves losing money by using a box which measured $\frac{1}{3}$ of a barrel, when the price in Covent Garden was set by the quarter barrel box.

I know not whether British Columbia fruit men will accept your proposed apple box or not, said Mr. Palmer. They use several sizes at present, but the Standard apple box with them measures $10\frac{1}{2}$ inches deep, $11\frac{1}{2}$ wide and 18 long; and the

Special apple box for smaller sized apples, measures 10 x 11 x 20.

TENDER FRUITS SAFE IN PROPER COLD STORAGE.

GIVEN cold storage on land and sea that will keep our fruit just above the freezing point, it will doubtless be quite safe to hold our fruit for a fixed price which will fairly represent its real value, instead of allowing it to be sold for a song because of its perishability.

"Yes," said Mr. Fisher of Burlington, "there is a rub. Half the time we do not get an evenly low temperature on ship board. Our Burlington fruit growers sent a car load of Bartlett pears to Manchester this summer, on the Manchester Commerce, and a large portion were spoiled on the way. I got a copy of the thermograph record, and it showed a variation all the way from 68 to 30; 'cooked or frozen' is surely applicable to such conditions. Bartlett pears will not stand such extremes of temperature."

The writer reported that his shipments of Bartletts this season to Glasgow by the Donaldson line were carried in excellent condition. Our confidence in a well regulated cold storage was still farther increased by an exhibit of Duchess apples on the fruit tables by Mr. W. H. Bunting of St. Catharines. The half cases, which had been packed on the 4th of August and held at about 40° F. for four months, were in fair condition at the date of the meeting, the 2nd of December.

REPORTS OF EXPERIMENTERS.

ON Tuesday morning Dr. Mills, Chairman of the Board of Control of our Fruit Stations, took charge of the sessions, and each experimenter was called upon to give notes on the most desirable varieties of his special fruit. There are now fourteen fruit stations and the reports are becoming more valuable each year.

APPLES.

HOW fortunate that each latitude has some fruit which succeeds in it better than anywhere else, and great good will result if our fruit stations discover those fruits which will bring the most profits to each section. Mr. Harold Jones of Maitland says that four varieties of apples are very profitable along the St. Lawrence River, viz.: *Fameuse*, *McIntosh Red*, *Wealthy* and *Crimson Pippin*, about in the order named. More money can be made from orchards of *Fameuse* than from any other crop in the district, providing scab is controlled by spraying. For the Ottawa valley Mr. MacCoun recommends *McIntosh Red* and *Wealthy* as first for market purposes, for they succeed perfectly and grow free from blemishes. "No one," said Mr. R. B. Whyte of Ottawa, "need think of planting *Spy*, *Baldwin*, *King* or *Greening* along the Ottawa, for they cannot be grown."

Mr. A. D. Harkness of Irena, stated that this year he had received for his *McIntosh Red* and *Fameuse* from \$3.25 to \$3.50 per barrel in the Ottawa market.

Mr. G. C. Caston, of Craighurst, showed a large number of varieties of apples. "I have tried," said he, "quite a collection of commercial varieties in Simcoe County, and find nothing superior to the *Spy*. I consider it the hope of apple growers in my district, for it excels every other variety, both in appearance and in quality. True it is very long in coming into bearing, but it is 'worth waiting for.' Besides if you top work it on *Tolman Sweet*, it will bear sooner than if worked on other stock.

"The Russian apples I find to be mostly summer varieties, the *Bogdanoff* perhaps comes the nearest to a winter apple. We cannot grow the *Fameuse*, nor the *McIntosh Red*, nor the *Baxter*, on account of scab. The *Peerless*, which I got from Minnesota in 1895, bore this year an average of a half bushel each tree. It is a seedling

of *Duchess*, which it somewhat resembles; it is a good cooker, but it is a fall apple."

"I have about three hundred varieties of apples in my experimental orchard," said Mr. Dempsey, who is experimenter for the Bay of Quinte district, "one half of which have been added since 1894. For the Bay of Quinte region I would advise planting *Duchess*, *Trenton*, *Gravenstein*, *Fameuse* and *McIntosh* for summer and fall; and *Spy*, *Ontario*, *Stark*, *Hubbardston*, *Seek*, *Cranberry* and *Ben Davis* for winter.

"In the southernmost sections of the province the winter would adopt the following list, in order of ripening. viz.: *Transparent*, *Duchess*, *Alexander*, *Gravenstein*, *Blenheim*, *King*, *Baldwin*, *Spy* and *Roxbury Russett*."

PLUMS.

MR. HAROLD JONES is testing plums which may prove suitable for the St. Lawrence district. He has not found any of the old English kinds (*Domestica*) to be hardy, and has now concluded to test only native stock. He mentioned four kinds which he had tried, and in which he had placed much confidence, viz.: *Milton*, *Whittaker*, *Hammer* and *Forest Rose*.

PEACHES.

THE day of extraordinary prices for peaches grown north of the peach belts seems to be rapidly passing; for in cold storage, this tender fruit may be sent to us from distant American orchards and fill our markets. There are very few parts in Ontario in which a peach will thrive with any kind of certainty; even in *Essex*, that part of Ontario considered especially fitted for peach culture, hundreds of acres of peach trees were winter killed by an exceptional winter, and much discouragement has resulted. Mr. Hilborn, our experimenter of *Essex*, gave a list of his favorite varieties, as follows: *Triumph*, *Greensboro*, *Yellow St. John*, *Garfield*, *Early Crawford*, *Fitz-*

gerald, Engol, Elberta, Golden Drop, Smock, and Salway.

"Suppose" said Dr. Mills, "you were confined to six varieties, which would you select?" "I would take St. John, Garfield, Fitzgerald, Engol, Elberta and Smock," said Mr. Hilborn.

We suggested the Sneed, for extra early. It ripens at Maplehurst about the middle of July, quite in advance of any other variety, and although a cling, and of no great merit comparatively, still it has no competitor of its season, that is grown in Canada.

RASPBERRIES FOR SUCCESSION.

WHEN it came to raspberries, we found in Mr. Sherrington, of Walkerton, a man whose experience as an experimenter was most valuable, especially for people in the Lake Huron district, for he has tested about sixty-five varieties. Having grounds somewhat limited in extent, he has used raspberries as fillers between the rows. He plants three rows, six feet apart, and nine feet from the apple tree rows on each side, which are thirty feet apart. Then in these rows he plants six currant bushes between every two apple trees, giving room to cultivate a large space about each tree. He grows the berries on the hedge row plan, cutting out all old wood in the fall and giving the ground a coat of barn yard manure and ashes.

What are your best varieties for profit? we inquired.

Well, if you mean table berries for the home trade in Walkerton, the following are the best EARLY ONES:

(1) *Reliance*, which is hardy, fairly vigorous, and fairly productive.

(2) *Turner*, the hardiest of all, fairly vigorous, splendid for the home table.

(3) *Marlboro*, a fairly productive, a little tender, a good shipper, but considered too dry for home table.

MEDIUM AND LATE—*Cuthbert*, queen of all red berries, the very best red.

Phoenix, hardy and more productive even than *Cuthbert*.

Loudon produces enough canes.

"I do not care," said he, "for the purple varieties, such as Shaffer and Columbia. "I differ with you there," said F. Metcalfe, of Blyth, "I have grown Columbia most successfully, and have found it very profitable."

So we find that doctors often disagree.

CURRANTS.

PROBABLY no fruit is so suitable for an orchard filler as the currant, for it ripens in the shade of the trees, and seems to rob the ground of very little substance. At Maplehurst we have grown it in this way for twenty-five years, and have found it very profitable until the last few years. Now the demand for it is increasing again, and why should it not, for of all fruits it is one of the most wholesome; and for pies or jelly, the fruit is more appetising.

Our favorite had always been the Cherry, though the Fay was about its equal, so we were interested in Mr. Peart's list of most profitable varieties. He places the *Wilder* at the head of his list. "I prefer it myself," said he to any other. It is large, of fine quality, while the plant is productive, and its only fault is its susceptibility to leaf blight, late in July. Of other varieties I commend the Cherry, Pomona, Fay and Red Victoria.

GRAPES.

MANY new varieties of Grapes have proved useless, said Mr. M. Pettit, our experimenter at Winona, who has tested about 150 varieties of Grapes, and out of them all has one dozen kinds which he can recommend as really of value for the commercial vineyard.

The *Alice* is one of the most recent intro-

ductions, and in his opinion it is nothing but the old Diana resurrected.

Campbell's Early is worth planting because it is so early, and there is nothing better in its season. It is not as productive as Champion, but of course Champion is too poor a grape for any purpose; and in quality Campbell is superior to Moore's *Early*. *Brighton* is too tender for shipment, and *Eaton* is a large black soft grape of poor flavor; *Moore's Early* does not make enough wood, and consequently is not sufficiently productive. *Early Dawn* is a good wine grape. A good list of shipping grapes, said Mr. Pettit, is the following:

Worden, Moore's Diamond, Lindley, Delaware, Niagara, Catawba and Vergennes. "I think very highly of the Vergennes for winter use," said Mr. Orr, who was making a fine display of them on the fruit tables. "I have about half a ton of them in my cellar, for the use of my family and their friends during the winter. They are one of the best keeping varieties."

STRAWBERRIES FOR SUCCESSION.

IT was a splendid opportunity to take notes of varieties for spring planting, with so many of our fruit experimenters present, and almost for the first time we were privileged to question our strawberry specialist, Mr. E. B. Stevenson, of Jordan, so long known among us as the best Canadian authority on this delicious fruit. His list of commercial varieties was as follows: *Early*; Michel, Vandeman, Monitor, Beder Wood and Clyde; *Medium and Late*; Haverland, Tennessee Prolific, Saunders, Glen Mary, Sample, Brandywine; *Very late*; Aroma, Hunn, Gandy, Joe.

NEW FRUITS.

PROF. H. L. HUTT, Chairman of the "New Fruits Committee," presented the report of the committee which recorded the receipt of a large number of samples of

fruits during the season, some of which were sent to himself at the College, Guelph, some to Mr. W. T. Macoun, at Ottawa, and some to Mr. L. Woolverton, editor of this journal, Grimsby.

Many of these were declared to be no better than varieties already in cultivation, but there were a few which were esteemed promising. An attempt will be made to secure the latter for testing at the fruit stations, for from among our native seedlings there will no doubt arise the varieties best adapted to our country. The following are some fruits reported as "promising."

PEARS—Bemans Seedling.

PLUMS—(from Central Experimental Farm) Consul, a seedling of Wolf, yellow in skin and flesh, juicy and good, September to October. Sunrise, seedling of de Soto, yellow, with more or less bright red, flesh yellow, juicy and sweet.

PEACHES—About thirty seedlings were grown about Guelph, some of which developed considerable hardiness, and from these seedlings are being raised by Professor Hutt with a view to producing varieties still more hardy.

CURRENTS—A new black currant, originated by Dr. Saunders, has proved of considerable value, and has been named the Topsy.

CRAB-APPLES—Of these five new seedlings Dr. Saunders are of considerable value for northern sections, viz., *Prince*, *Tony*, *Alberta* and *Elsie*.

GOOSEBERRIES—Several interesting seedlings were raised by Mr. Stephens, of Orillia; and in raspberries the Herbert, a new variety of great promise, has been recently offered for sale by Mr. R. B. Whyte, our director at Ottawa.

PROFIT IN TOMATOES.

THERE was not much talk about tomato growing profit, but Mr. Peart reported on the *Honor Bright* as a good variety for export.

This year he had made a shipment to Great Britain, and had received as high as 6s. a bushel box for them, which was quite satisfactory. For the home markets there seems to be very little money in growing tomatoes unless they are very early. Many growers make contracts with the canning factories for their crops, with permission to ship the early ripe fruit, up to a certain date, after which all are to go to the factory, which is a very fair bargain. The contract price so far has been 20 cents a bushel, but, owing to the advance in the canned goods, the factories in the Niagara district are already offering 25 cents a bushel for the crop in 1903. This should pay the grower, when one considers that there is no commission, baskets or express charges to pay.

APRICOT AND OTHER FRUIT PULP.

SIR,—In consequence of an enquiry which I made as to why apricots were not grown more extensively in Canada, Professor Saunders sent me last June a letter containing an extract from a report which you had made on the subject which terminated with the statement that you were conducting further experiments.

Mr. MacKinnon, Chief of Fruit Division, was here a couple of days ago, and in the course of conversation he mentioned also that he had during his visit here been struck with the large number of apricots, and how advantageous to Canadian fruit growers the increased production of this fruit would be. You are aware that apricots are imported just as fresh fruit, also as pulp for jam making, dried and canned.

I shall be interested to learn the results of your further experiments, and this is my reason for writing to you.

HARRISON WEIR,
Curator Canadian Section Imperial Institute,
London, England.

At Maplehurst we have been trying to grow apricots on our sandy loam for nine years past. We planted every variety offered by the nurseries, but have had no fruit to speak of all these years. One explanation seems to be their early blossoming, which exposes them to injury from spring frosts; and another is the ravages of the curculio, which usually causes all their fruit to drop before maturity. About twelve

years ago we planted a dozen Russian apricots, but every one has proved worthless.

Unless therefore the soil or climatic conditions elsewhere bring about results different from ours at Maplehurst, we can encourage no one to undertake apricot growing for profit.

If there were a demand at paying prices for peach or raspberry pulp we could see business ahead, but experiments already tried by a committee of our Association of which Mr. Boulter, of the Picton Canning Factory, was the chief experimenter, discourage that enterprise, because the prices were not remunerative.

California is undertaking the export of all kinds of fruit pulp in rectangular bricks made by "boiling down the fruit pulp to a sugar until the desired consistency is reached when the mixture is poured into pans, and permitted to dry slowly for ten hours," being eventually cut in bricks and done up in waxed tissue paper. Strawberry pulp in cans is much in demand for flavoring of ices and soda water.

FRUIT INSPECTOR'S REPORT.

THE Fruit Division at Ottawa is rendering good service to fruit growers by reporting to them upon the sales in Great Britain, and upon its condition on arrival. For example we have just received following, dated Glasgow, Nov. 17th, regarding fruit ex SS. Lakonia:

"H. Gordon Ball, Niagara, Ontario.—15 cases King Pippins. These were without exception the most perfect and finest lot of apples which have come here this season; every apple was wrapped separately in paper, and each case was perfection from top to bottom. Unfortunately, the lids of the cases were only of $\frac{1}{8}$ inch wood, which allowed of easy access to the contents. It seemed incredible that the packer of such apples should send the boxes away with such poor lids."

"L. Woolverton.—150 cases apples, Greening and Russets XX 3/6, 4/--; Cranberry Pippins, good XXX 5/6, 6/--, XX 4/--, 5/--.

"A. Block.—Californian Pears, all in perfect condition; varieties principally Winter Nelis and Glout Morceau. These made 7/6 to 8/6."

THE TALLMAN SWEET AS A STOCK FOR GRAFTING.

SIR,—Is Tallman Sweet the best stock to top graft on, and does top grafting any species shorten the time at which the tree comes into bearing?

When you get Tallman Sweet trees from nurserymen for spring planting can you graft immediately they are planted or must you let them grow for a year?

Would two year old seedlings from Tallman Sweet seed do as well as purchasing from nurserymen?

Is there any data or do you know at what age would the following kinds come into bearing if top grafted on young Tallman Sweet trees, viz., Spy, Baldwin, King, McIntosh, Gravenstein, Astrachan and Blenheim.

Is there any of the above trees that should not be grafted as above? An answer would oblige.

Toronto.

C. L.

The influence of the stock upon the cion has been often observed, especially is it noticeable where the free growing pear cion is grafted upon the quince; for the growth of the pear wood is thereby checked, and the strength of the tree is diverted into the formation of fruit buds, and into the production of large sized fruit.

Mr. Geo. T. Powell, of New York State, reports that he has some King apple trees top grafted upon Northern Spy. The former has coarse grained wood and is a rapid grower, while the wood of the latter is very close grained and very solid. He found the King in this case more productive than when

grafted on other wood. Mr. G. C. Caston, of Craighurst, Ont., reports having top grafted Spy cions on Tallman Sweet trees; and that the Spy, usually so long coming into bearing, began to be productive sooner than when grafted on ordinary seedling stock. Nurserymen seldom take this subject into consideration in propagating trees, because it would be inconvenient in a large way. It seems however reasonable to suppose that if they could secure seeds from the pumice of Tallman Sweet in sufficient quantity to use in propagation of young stock it might give excellent results. Of course any one, who pleases, can grow young trees by sowing seed of Tallman Sweet apples, and perhaps a large number of the seedlings would have the wood characteristics of the plant, but on this one cannot fully depend.

If you buy Tallman Sweet trees for top working, it is better to let them grow a year or two, and get well established before top working them.

We cannot say just how soon such trees would begin bearing, so much depends upon tillage, kind of soil, and various other conditions; we have an orchard of Spys on ordinary stock, and it was twenty years before we had paying crops from it. Also we have an orchard of King apple trees on ordinary stock which are now about forty years planted, and have grown to a height of about thirty feet, and they do not give a full crop of apples more than once in four years. Of course the apples are very large, and high priced, but this scarcely makes up for their slim crops.

REPORT OF THE SECRETARY REVIEWING THE WORK OF THE PAST YEAR.

THE Ontario Fruit Growers' Association is the oldest Society in affiliation with the Department of Agriculture. But age here is no indication of lessened energy or halting progress. For a number of years good educational work has been done by this association, and some distinct advances have been made during the past twelve months.

LOCAL FRUIT GROWERS' ASSOCIATIONS.

These were organized last spring by delegates sent out by the department under the auspices of the association. It was found that the Horticultural Societies of our towns and cities operating under the Agricultural Arts Act did not apply thoroughly to practical fruit growing conditions. Their work has been devoted to floriculture and along the lines of civic improvement. Fifty-one such fruit meetings were held, the programme being to meet in a suitable hall, then to adjourning to an orchard for a practical demonstration of pruning, grafting, etc. At night a general meeting was called when the organization was completed and officers were elected. As a result of these meetings thirty-six local organizations were formed reaching all the way from Iroquois on the St. Lawrence to Leamington in Essex County.

FRUIT INSTITUTES.

The work of our Farmers' Institutes system, which formerly applied to dairymen, stockmen, fruit growers, and farmers as a whole, has been gradually divided into separate departments, so that the sections of the country engaged almost entirely in one branch of Agriculture may receive special attention along that line. When it was decided to organize Local Fruit Growers' Associations, we took advantage of the Farm-

ers' Institute machinery and solicited the co-operation of its officers, and through their co-operation and help in the matter of funds, we were enabled to hold a great number of these Fruit Institutes or practical orchard meetings.

PRUNING DEMONSTRATIONS.

At these meetings the Delegates gave a talk on the necessity for good pruning and then proceeded to show how it should be done. In almost every case this method provoked a lively and practical discussion which was especially appreciated by the farmer boys.

THINNING FRUIT.

Still later in the season when the fruit was pretty well advanced a request was made for orchard meetings in the apple sections, for instruction in summer orchard management and the thinning of fruit. Here again the Dominion Fruit Inspectors helped us out, and that they did good work is evidenced by the many complimentary letters from farmers who had received the instruction. These meetings lasted from July 22nd to 31st.

OBJECT LESSON IN SPRAYING.

Following up the orchard meetings, we arranged for demonstrations in spraying and twenty meetings were held. The Secretary of the Local Fruit Growers' Association made all arrangements, supplied spray pump and the materials for the Bordeaux mixture and selected an orchard for the work. These meetings commenced at Whitby and extended as far as Iroquois.

SPRAYING FOR THE SAN JOSE SCALE.

The San Jose Scale commission in their report to the Minister of Agriculture last month recommended the use of lime and sulphur for the winter treatment of the scale.

The difficulty, however, seems to be in cooking of the sulphur. The Inspector reported that he had good results from using the steam of a threshing engine, and in this way the lime and sulphur mixture could be prepared on a large scale at a comparatively low cost. It was then arranged to hold practical demonstrations in the preparing and applying of the mixture in the affected districts. The following places of infestation were selected, namely: St. Catharines, Niagara, Grimsby, Blenheim, Kingsville. Two have been held and were most successful. The meeting at Grimsby is to be held this week. The latter two will be arranged for between now and the first of the year. We are endeavoring to take the result of the scientists to the farm and to the people.

FRUIT EXPERIMENT STATIONS.

In our orchard demonstrations work we found we could make our work still more valuable to the people by having the annual meeting of the Farmers' Institutes take the form of a basket picnic on the grounds of the local Fruit Experiment Stations. In this way the different varieties under cultivation could be seen growing side by side, and it could be easily seen which were the best varieties to grow for market or home purposes. To make the work still more valuable we were assisted by some of the professors of the Agricultural College, who gave addresses and answered questions in reference to the growing of fruit, the destruction of insects, fungous diseases, etc. Scores of letters have been received at our office telling of the practical benefit of the meetings. Our Experimenter should be the authority in each district as to what to plant, and what and when to graft, prune and spray. If the Fruit Growers' Association by the methods already started, and by other means, can bring the fruit farmers in touch with the Experiment Stations we believe it will do as much for the industry as can be accomplished in any other way.

JUDGING AT FALL FAIRS.

During the past fall fair campaign we have been asked through our office, for many judges of fruit and flowers at the exhibitions. This resulted from correspondence we had last spring with the agricultural and horticultural societies in reference to the improvement of their prize lists. A committee of this association met in Toronto last spring, and at the request of the Canadian Association of Fairs and Exhibitions prepared a model prize list for the use of fair boards. We are pleased to note that a number of our directors were selected as judges by the fair boards this year. This is another evidence of the hold which our association is getting upon the people of the province.

APPLE GRADING AND PACKING AT FALL FAIRS.

Practical demonstrations in grading and packing of fruit were given at many of our fall fairs. Here again the Association is indebted to the Dominion Fruit Inspectors for their services. Wherever they went they were surrounded by enquiring fruit growers, and questions were asked on all phases of the work, and the demonstrations were watched and criticised by the eager onlookers.

HORTICULTURAL SOCIETIES.

Many of these Societies are doing first class work in floriculture and town and village improvement. Last year the Superintendent of Farmers' Institutes was asked to arrange a lecture course for these Societies and this was done. It was also continued again this year, and the Societies have expressed their appreciation of the good work of the lectures. A pleasing feature of the work has been an afternoon meeting at the schools. This has been appreciated both by teachers and scholars, and has also helped to advertise the work of the Horticultural Societies.

HORTICULTURAL LITERATURE.

The Department of Agriculture has also issued two publications during the year which are of special interest to our members. The first is the *Hand Book of Women's Institutes*. This contains articles on floriculture which are practical and up-to-

date. The second is just out, and is in line with the resolution passed by the association last year. It is entitled *Nature Studies*, and will be useful in the study of elementary science.

G. C. CREELMAN, Secretary.

Toronto.

FRUIT GROWING IN THE EARLY DAYS

AUTOBIOGRAPHY OF OUR PIONEER FRUIT GROWER, A. M. SMITH, OF ST. CATHARINES, WRITTEN BY REQUEST—ONE OF THE TWO LIVING CONSTITUENT MEMBERS OF OUR ASSOCIATION—CREATED AN HONORARY LIFE MEMBER AT BRANTFORD IN 1900, AND AN HONORARY DIRECTOR AT COBourg IN 1901.

IF you think I have succeeded in any way in making the country more prosperous, or in making the people happier or better, and that my example and efforts will help others to strive to make Canada the brightest spot on the face of this great world we live, I shall have no objections to giving you a little of my history.

I was born in the town of Brandon, State of Vermont, on the side of the Green Mountains, Sept. 24th, 1832. My father was a farmer and a charcoal burner. When I was 12 years old he lost his farm and all the property he had through the failure of a firm he had a contract with for burning or making charcoal. He then went to Western New York, taking with him a family of six children, to "begin life anew," as he expressed it, working on a farm by the month for a year, and then working land on shares for a time, and finally purchasing a small farm to be paid for on time.

The early efforts of my life, from the age of 14 to 20, were to help pay for the farm and clear up a part of it, which was in bush. This was accomplished with the aid of an older brother, both of us working out by the

day or month among neighboring farmers and we had the satisfaction of seeing my father have a comfortable home in his old age. The only chance I had for schooling was three months each winter, when I generally boarded with some farmer and did chores for my board and attended the district school; excepting six weeks after I was 20, which I spent at the Yates Academy, or High School.

I always had a fancy for fruit and fruit growing, and in the summer of 1852 I worked for Mr. E. Moody (father of the Moodys who now carry on an extensive nursery at Lockport, N. Y.) in his nurseries and peach orchards, where I obtained a knowledge of the nursery business before I embarked in it on my own hook. In the fall of that year I received a stroke of lightning, which killed the horse I was driving and laid me up for two years, six months of which I was in bed helpless. So the capital I had to start with when I was twenty-one years of age was, two years' sickness and \$100 of a doctor's bill to pay. My father cared for me when I was sick and gave me a cow when I first went to house-

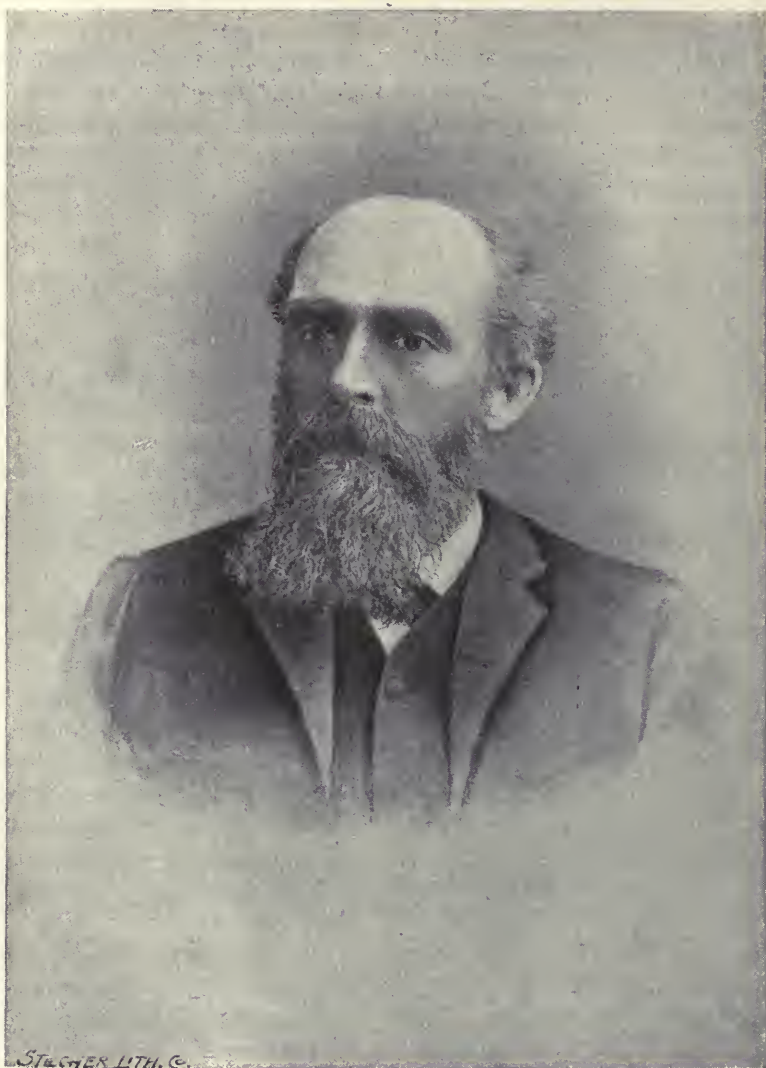


FIG. 2521. A. M. SMITH.

keeping, which was all he was able to do. My physicians had told me I never would be strong enough for hard work, but I was determined not to give up but to do something ; so I got me an old horse and secured an agency for an insurance company, and for selling books and trees and some other things, and I traveled the country, when I was able, for about two years. Gradually I gained my health and strength and paid off my debt. Having previously visited

Grimsby and made up my mind that it would be a good location for the fruit and nursery business, I persuaded the late C. E. Woolverton, in the spring of 1856, to set apart a portion of his farm and embark in the business on a small scale. We planted about 600 peach trees in orchard and about 6,000 young apple trees and some pears, plums, cherries, etc., in nursery, in all about eight or ten thousand trees. Ours was the first peach orchard of any extent

planted in that part of Canada, though there were small nurseries at Hamilton and St. Catharines. Some of the old farmers of the neighborhood, among them Mr. Dennis Woolverton, the grandfather of the editor of this journal, and Mr. Andrew Pettit, the father of Mr. A. H. Pettit, tried to discourage us and wondered what we would do with all our peaches when they came in bearing. They also said that we never could dispose of eight or ten thousand fruit trees in Canada. But when our trees did bear, and we had an express service established from Grimsby to transport our fruit to northern towns and cities, they soon found we were making more off 8 to 10 acres of peaches and strawberries than they were from their 200 acre farms, to say nothing of our nursery business. After that so many of them went into peach growing, that Grimsby soon became known as the "Peach Garden of Canada." About this time I called attention of Curtis & Co., large fruit dealers in Boston, Mass., and some others, to our Canadian apples, and they sent buyers here who pronounced them the finest on the continent, and our apple trade began to boom,

which was no detriment to the nursery business. As you know, a few of us started the Fruit Growers' Association in 1859, of which I have been a member ever since its beginning and attended most of its meetings, and I hope I have been instrumental in advancing its interests. I continued in the nursery business up to the year 1900 at Grimsby, Niagara Falls and St. Catharines—over 40 years—when I sold out, thinking the care of my small fruit farm at Port Dalhousie would be work enough for a man of "three score years and ten." I have never been able to lay up much of this world's goods, though I have a comfortable home. I have raised and helped to educate quite a large family, among them two graduates in medicine, who are now medical missionaries, and three trained nurses, and one who has been a successful school teacher, besides three who have not chosen their profession yet. I have raised and distributed a great many thousand trees through the country, but have never boomed or sold a variety which I did not think was of real value. My motto has been: "Give every man full value for his money."

VALUE OF AN APPLE TREE

I BELIEVE that it will not be generally disputed that a healthy bearing apple at ten years of age would be worth \$25, that the value of the fruit from this tree will in that time have equalled \$15, says Western Experiment Report. This certainly would be a very liberal return from the one-hundredth part of an acre, especially when we consider that under ordinary circumstances this tree will increase in value and productiveness for ten years longer, at least. In planting an

orchard, the location and site need to be well considered. In regard to location; it is yet a matter of doubt if many varieties of tree fruits, except native plums, will succeed in the extreme north. In all other localities there need be no hesitation for planting. In selecting a site an elevated spot should probably be given preference, as the flower buds are less apt to be destroyed by late spring frosts than on lower land.

TILLAGE FOR THE ORCHARD

DIFFERENT CONDITIONS IN VARIOUS PARTS
OF ONTARIO—PRECIPITATION IN SUMMER
AND IN WINTER—WHY FRUIT GROWERS
SHOULD CULTIVATE IN AUTUMN, WHY IN
SPRING OR WHY IN SUMMER—THE FIRST OF
A SERIES OF ARTICLES

BY

PROF. J. B. REYNOLDS,

OF O. A. C., GUELPH, ONT.

SPECIFIC directions for orchard cultivation, to apply to every fruit-growing section of Ontario, cannot be given. It must be borne in mind that Ontario is not a small country, and that within its borders it possesses wide variations of climate. From the eastern end of Ontario to the extreme west at Port Arthur, the annual rainfall diminishes by one-third. Generally the farther west of Ontario, the drier the climate, although this rule is subject to exceptions when lake-shore or river-counties are compared with inland counties. Therefore, since cultivation is becoming more and more a matter of conserving moisture, it is evident that the same method will be applied to different sections with different degrees of success. The methods of orchard cultivation that experience teaches to be the best at Ottawa, or along the St. Lawrence, may not do at all for western or inland sections.

The term 'rainfall' has been used. A term more suitable for our purpose is 'precipitation', which includes rainfall, snowfall, dew and all aqueous deposits from the atmosphere to the earth. With reference to the annual precipitation, here is an important question. Which part is of more value to the fruit-grower, that which falls in the autumn and winter—the inactive season—or the summer rains? At first thought, it may be supposed that the summer rains are of more value, since they come when they are most wanted. Yet, with some reservations, the opposite is the fact. The more valuable

and necessary precipitations are those which occur during the inactive season. This is true for several reasons. First, the precipitation of the late fall and winter usually comes when the ground is prepared to receive and to retain it. Then, the winter's snow is conveniently slow in melting, and gives the land plenty of time to absorb it. There is frequently the equivalent of two or three inches of rain, in the form of snow, lying on the ground at one time and, on fairly level, well-prepared ground, little or none of this is lost when it melts. In the third place, the precipitation of the inactive season is usually quite sufficient to be effective, and to saturate the ground to a depth of three or four feet or more. At this period, also, there is little evaporation, and therefore but little loss of moisture from this direction.

On the other hand, what happens with the summer rain? A gentle soaking rain, lasting a whole day and amounting to one or two inches in depth, will likely penetrate the ground to a sufficient depth to reach the roots of the trees. But this is not the usual character of summer rains, which are often tantalizingly small in quantity and short in duration. A smart shower, lasting from twenty to thirty minutes, may penetrate two or three inches of an ordinary soil. The principal effect of such a shower is to compact the surface soil, destroy the mulch which the careful fruit-grower has maintained, and start evaporation of the moisture

previously in the soil. To restore the mulch and prevent this evaporation, the fruit-grower is compelled to start his cultivator going very soon after the shower.

Upon these considerations are based the principles and the practice of orchard cultivation. Granting the soundness of these conclusions, the fruit-grower will readily infer that he should have, for the conservation of moisture, two distinct objects in

view at two distinct seasons of the year: he must cultivate in the autumn so as to prepare his land to receive and retain the precipitation of the late autumn and winter; and he must cultivate in the spring and summer so as to conserve the moisture that the soil has absorbed during the inactive season. How these two objects are best attained will form the subject of the subsequent articles under this head.

FREIGHT RATES ON FRUITS

THE Fruit Growers convention at Walkerton has furnished another proof of the vital importance of the freight rate question to every productive industry. The railways are everywhere the link connecting producers with consumers, whether the markets served be domestic or foreign, and it is consequently an easy matter for any industry to be rendered unprofitable and thus crowded out by excessive freight charges. About a year ago the fruit growers carried on an energetic agitation in favor of a general reduction in freight charges, especially in the rates designed to establish distribution centres in Manitoba and the Northwest. One of the most serious causes of complaint was the grading of fruit as less than car lots when a fruit grower loaded a car with different varieties. The difference in the rate was sufficient to shut out many Ontario fruit growers from the western market, there being few dealers able to order an entire car of a single variety. There were also complaints as to discrimination designed to affect the course of trade and to favor certain western points as distributing centres. The decision of the fruit growers was at that time to the effect that little or no relief could be obtained until a railway commission was appointed,

with authority to pronounce as to the fairness of freight rates and to determine all disputed points between the railway and their patrons. The convention at Walkerton has reiterated that view. The resolution adopted on motion of Mr. W. H. Bunting, of St. Catharines, declared the belief of the convention that freight rates would not be placed on an equitable basis until a railway commission was appointed, with authority to go from point to point, investigate grievances and publish reports setting forth the facts disclosed. Delegates were appointed to wait upon the Government and co-operate with the farmers' associations and other organizations in urging the appointment of a railway commission.

The discussion on the resolution did not bring out any divergent views, although it served to disclose a wide variety of complaints. One member complained that railways would not give rates to competing points without consulting their competitors. This would indicate a rather close combination or working agreement to maintain charges at the endurance level. A complaint, apparently growing out of the policy of charging according to the bearing power of the traffic, was to the effect that different

rates was levied on different kinds of fruit. The inadequacy of the service was severely criticised, and it was charged that the rate from the Canadian shipping points was higher than from places similarly situated in the adjacent States. It is evident from the discussion that a great many abuses have grown up in fruit transportation, and that some are sufficient to seriously retard and injure the development of local and export trade. This is the natural result of a system which virtually gives the railways unlimited power in determining what they will charge in hauling fruit. The products of our orchards and vineyards must vary largely from year to year. In the abundant years the fruit growers must make up for the occasional bad years, but it is not unnatural for the railways to estimate according to the bountiful seasons. In carrying out the policy of adjusting rates according

to the endurance of each line of traffic the railways are apt to overestimate the profits on fruit growing. But even if no such mistake were made, and no development of fruit production was killed off by excessive charges, there would still remain the evil of fixing charges according to the fruit growers' ability to pay. There is at present no regulating power except the natural acquisitiveness of the railway companies, tempered by their care not to kill off the industries that create traffic. Under such conditions abuses are inevitable. In fact, when the conditions are fully considered the almost absolute power and authority of one party to the contract in the hauling of produce—it seems strange that conditions are not much worse. An independent tribunal to adjudicate between shippers and carriers is a necessity, and must be established before any material improvement can be effected.—*The Globe*.

FOUR GOOD POINTERS

A FARMER grows 2,000 barrels of fine apples. At harvest time he dumps them into the hands of a middleman for \$1,500. The middleman stores the apples until February and sells them for \$12,000; the farmer then complains that "there is no money in farming," and that "farmers are robbed," and so on. Moral: the man who commits suicide cannot properly accuse anybody for murdering him.

A miserable apple appears on the market. It is spongy, stringy, acid, flatulant, juiceless and generally unsatisfactory for eating, stewing, baking, pieing, drying, apple-buttering, cidering, or vinegaring, but it is of good size, rich in coloring and generally showy in appearance, and buyers make a call for it. Nurserymen are compelled to grow it. Orchardists are forced to supply it. Moral: Not all people at all times really

know what they wish or what is really good for them.

A stranger appears. He carries a book containing portraits of apples and other fruits loud enough in color to make sleep impossible within ten miles of the trees. The victim buys some of the trees. When they come to bearing, he is surprised to find that none of the rainbow coloring in the books has got onto the fruit. Moral: Some people are too hard to please, and some are not worth pleasing.

The man who grows grapes to make wine, corn to make whisky or apples to make cider, signs his name to a petition to legislation that shall forbid any man to sell wine, whisky or cider. Moral: This is as queer as it is immortal.—G. W. Hizz, in "New York Farmer."

SOME GOOD THINGS SEEN ON A RECENT VISIT TO SCOTLAND

BY

R. CAMERON,

NIAGARA FALLS.

WE have to thank the Secretary of Hamilton Horticultural Society for the manuscript of Mr. Cameron's address, of recent date, and did our limits permit, we would give the whole paper; but as it is we are compelled to simply make a few selections:

Retinospora squarrosa grows in Scotland to the height of ten feet, columnar in form, and, having a heath-like foliage of a soft grey color, it could not be passed without being admired. I think this variety is the handsomest of its class, and a striking object in the grave-yard. It may be said to be hardy in the Niagara district. There are several other varieties of the *Retinospora*. *Cupressus Lawsoniana erecta* is another very beautiful tree of first quality. This was seen on a number of gentlemen's estates, a handsome evergreen, with fern-like foliage on long, drooping branches.

There were a few varieties of *Biotas* seen also, that were the picture of health, and suitable for cemetery trees, all having beautiful fern-like foliage, both green and golden. They are very decorative plants and much used in Britain, where the soil and climate are very suitable for their growth. It may be said that most of the *Retinosporas* are hardy in the Niagara district. *Ericoides* is a very strange and beautiful dwarf variety. It takes on a bluish-steel color in the winter, making it a very conspicuous object. *R. sulphuricum* is another variety that is very attractive, also dwarf and pendulous, with golden tipped foliage. This one is not plentiful as yet. *R. filifera* has thread-like, drooping branches, very odd and pretty

when planted among others. *R. filifera aurea* is a dwarf golden variety, otherwise it is the same as the last named. *R. plumosa* and *R. plumosa aurea* are both very pretty, perhaps the hardiest of the lot, and the most robust growers—the one has golden foliage, the other a silvery green. *R. pisifera* would be considered the most beautiful by the majority of people. It is also a golden species. *R. obtusa* is a grand variety. It grows fast and upright, dark green on the upper side, silvery on the underside of the scale-like leaves, and looks very like *Cupressus Lawsoniana erecta* in form and foliage. There are a number of others but space will not permit taking them up just now.

I will pass on to the *Taxus* or Yews, that are so common in Britain, on every gentleman's place, in every cemetery, and in church and other public building yards. The Scotch call them *Taxus grandus*, and they are certainly grand and noble specimens there growing. There are a number of varieties of these beautiful trees, most of them hybrids. The following will be found to be the best. All are not supposed to be hardy in this country, but there are some that do very well in this vicinity, such as *Taxus baccata*, (common yew), hardy here. Very much used for hedges in Britain. There is also a golden variety of this one that is very pretty, named *Taxus baccata aurea*, (golden yew). *T. Hibernica*, Irish, or Florence Court Yew is probably the handsomest variety, growth upright, column-like, dark green, a very striking plant, but not supposed to be hardy in Ontario. There is a native species that is commonly found grow-

ing in our woods, a very pretty prostrate form, that should be made more use of in the way of clothing the ground under deciduous trees, that otherwise would look bare and bleak during winter months. This is *Taxus Canadensis*, generally called Ground Hemlock. The fruit is good to eat and very pretty. There have been a few hybrids raised that are also hardy in the Niagara district. In Britain the yews grow perfectly, the climate being very suitable to their development, the most common variety being *Taxus baccata erecta*.

The *Sequoias* and *Auricularia imbricata* are magnificent looking trees, growing on most gentlemen's estates. The last is used as a cemetery plant, and may be seen from sixty to eighty feet high. I saw, at Abercainry Castle, beds of *Azalea mollis* about eight feet high. None but those familiar with these shrubs can realize what a grand sight they are when in full bloom and in many colors.

The rhododendrons in every shade of color are the most common shrubs to be seen. They are grand if for no other reason than for their foliage being evergreen.

Then we have the *Hollies*, which are the most decorative large shrubs, or trees, in existence, evergreen foliage, and beautiful when full of their scarlet fruit during the winter months. There are some beautiful variegated forms of these plants. Then again we must not forget the Ivy, of which there are a number of varieties, green and variegated, and different forms of leaves. They are not hardy enough for this country. The best use that can be made of them is to grow in vases and window boxes, in a trailing fashion. For this purpose the Ivy is one of the best vines we have, because it will stand any amount of drouth, which would kill any other plant I know of. By laying the roots into the ground in a sheltered spot and throwing some leaves over the plants, they will come out all right in the spring, and be ready for use another season.

Another very beautiful plant which carries more fruit than any plant that I know of, and is the most fruitful of all its family, was the *Berberis Drawinii*. This variety, if found to be hardy in Ontario, should be grown by all lovers of plants; the fruit is purple.

Boxwood plants were seen twelve feet high, with magnificent dense foliage; this is one of the best of evergreens. Some varieties are hardy in this Province.

Ruscus aculeatus, or Butcher's Broom, (Lily family,) is a native of Britain and the Mediterranean region. This plant bears its small lily-like flowers upon the centre of each evergreen leaf, a strange place to produce flowers and seeds. The plant is dwarf, evergreen, and probably hardy with a little protection, resembling a Boxwood, the leaves prickly pointed.

The Gloire de Dijon roses are growing as common vines on many of the houses in the north of Scotland, covering in some places one-half of the buildings. They are clean, healthy, and full of bloom, a sight not easily to be forgotten, and the perfume of the flowers wafted by the wind was charming. The roses exhibited at the Glasgow Exhibition were very fine flowers, with splendid foliage, and good substance.

Buddleia variabilis is a very pretty plant and odd. The variety *globosa* is supposed to be hardy in some situations and will grow to ten feet high where conditions are suitable. They are natives of Peru, Asia and India.

I saw the pretty evergreen dwarf shrub of the heath family, a Canadian variety, that I have seen growing in our swamps, foliage green on the upper side, woolly and white on the under side, flowers white, which grows to about six inches high.

Mr. Cameron concluded his paper with a very extended list of plants, with brief descriptions of each; and many of them would, no doubt, do well in Ontario.

THE CANADIAN FRUIT TRADE

INTERVIEW WITH DOMINION GOVERNMENT
OFFICIAL—POSSIBILITIES OF THE FUTURE.

PROBABLY most people connected with the fruit trade know in a general way that the Canadian Government are doing a good deal to aid and extend the export fruit trade, but few persons are aware of the extent to which this is done, or the many points at which the Government assists the grower or the packer. With the object of attaining some reliable information on the subject the Glasgow representative of this journal had an interesting interview with Mr. W. A. MacKinnon, chief of the fruit division, who is at present in this country inquiring into the needs of the British trade, and endeavoring to ascertain where the Canadian falls short in supplying those needs, and what can be done to remedy any shortcomings that may exist.

The "fruit division," it may be exclaimed at the outset, is one of the sub-divisions into which the Department of Agriculture is divided. The Department of Agriculture is under the charge of the Hon. Sydney A. Fisher, Minister of Agriculture, and a most important branch is that directed by the Commissioner of Agriculture (Prof. James W. Robertson), who like many other Canadians, is of Scottish origin. This branch is divided into various "divisions," and it is with the fruit division that we have meantime to deal.

"Our main efforts," said Mr. MacKinnon in answer to our representative, "are devoted to the commercial aspect of the fruit trade; one of the most important things we have had to do recently was to see to the enforcement of the Fruit Marks Act of 1901 as amended this year."

"I suppose," ventured our representa-

tive, "that Act will be on the lines of our Food and Drugs Act?"

"Perhaps so. The Fruit Marks Act was passed to put an end to fraudulent practices, which casts discredit upon Canada and involved loss to those engaged in the fruit trade. These frauds were of two kinds—(1) fraud in connection with sale by description, as where ordinary fruit was described or marked as 'No. 1,' 'choice,' 'fancy,' or otherwise excellent; and (2) fraud in sale by sample—cases of 'faced' fruit in which the surface of a package of fruit was such as to give a false representation of the contents. The perpetrators of these frauds were shielded by using fictitious names, the names being changed frequently, too; but under the Act every package must bear the full name and address of the responsible shipper."

"I should think that would have a most salutary effect."

"Yes; because before the passing of the Act, if the trade got sick of any particular brand they did not get any more of it—at least under the same name. The Act makes the shipper accept responsibility, and the credit or discredit attaching to his own goods."

"How does the Act operate in the event of bad fruit being found? How is a decision arrived at?"

"It is held that false representation is intended where more than 15 per cent. of the whole is decidedly inferior to the surface shown. Under the Act, too, every package bears one of six marks—first quality, No. 1, or XXX; second quality, No. 2, or XX; and third quality, No. 3, or X. A fine is provided for every package marked to indi-

cate first quality if the package contains more than 10 per cent. of inferior fruit—bruised, undeveloped, wormy, or otherwise defective. That allows 10 per cent. for accidental inclusion of poor specimens of rapid packing; for, of course, all fruit is supposed to be in good condition when packed. The penalty is from 1 s. to 4s. per package."

"Is there power to confiscate for a contravention?"

"No; there is no power to confiscate, but a brand is put upon packages in respect of which the act has been contravened, and the packages reach this country with the brands on them. There are twelve inspectors examining fruit at packing-houses and at the ports of shipment, and the Act is being strictly enforced. There were ten or twelve prosecutions last year, and there have been others this season although it is not far advanced. It should be explained, however, that Prof. Robertson directed that last year the Act should be made chiefly educational, and the practice of the inspectors was to spend most of their time giving information as to the interpretation of the Act. Fines were only imposed toward the end of the season, and the infractions being first offences, the penalties were really nominal."

"What would be the probable extent of the fine in a case in which you were satisfied there was systematic fraud?"

"Well, a carload contains 150 barrels. If the inspector finds evidence of systematic fraud in one carload, and the magistrate imposes the maximum penalty, that would mean \$150. Another important point is that if the inspectors are engaged in examining a lot of fruit—say at Montreal—and they find evidences of systematic fraud, they would detain the consignment long enough to complete their examination if they have to open every package, and even if the whole consignment should miss the boat for

which it was intended. On the other hand, however, when the inspectors find uniform and honest packing in a certain brand, of that brand very few packages would be disturbed. In the spring and summer season, and also in the late winter season, the work of the inspectors is largely educational. They are all practical fruitmen—nearly all apple shippers, indeed—and thoroughly understand the cultivation of apples, from the planting of the tree to their marketing of the fruit. During the 'off season' they attend what are called 'farmers' institute meetings,' which are held all over the country, and where they can give information on any branch of fruit culture upon which the farmers desire enlightenment or advice. Useful work of this kind is done by the Ontario and other provincial governments, and also by the Dominion Government. In cases where the membership of a farmers' institute is over 50, the Ontario Government, for instance, make a grant towards the expenses of the organization."

"What about the future possibilities of the trade?"

"There has been a great revival in agriculture all over the country during the last two years, and the fruit section certainly has not escaped the influence. An important question is the varieties of fruit for which there will be a permanent demand in this country, so that the department can advise farmers what varieties to plant. Then, again, they wish to know the varieties that arrive here in the best condition, and there is also the question of packages. In this latter connection, for instance, I find there is a strong demand for small packages containing about 40 lbs. or 50 lbs. of fruit."

"What about pears and grapes, about which less is known here than apples?"

"In regard to pears the possibilities are almost unlimited, as the acreage on which good pears should be grown is not nearly taken up; and if the proper varieties are

grown—as probably will be the case—and the fruit arrives here in good condition, as it is beginning to do, there is room for unlimited expansion. Something has been done in peaches, but that is still in an experimental stage, and in regard to grapes, I will only say that the matter is receiving the attention of the Government.”

Mr. McKinnon proceeded to show in detail the exceeding care which was bestowed on fruit by the Government inspectors from the time it left the tree to the

time it arrived at its destination, and, in concluding what was a most interesting interview, he suggested that dealers on this side might facilitate the work of the Canadian Government by communication with Mr. Grindley, at the Canadian office in Liverpool, in the event of their being defrauded either in connection with the marking or the packing of Canadian fruit.—*The Journal of Fruit and Greengrocery, London, Eng.*

LATE FRUITING OF BERRIES

SO many reports have been published this season of berries ripening in October and November that curiosity is aroused as to the cause of such phenomena. The peculiarity has shown itself in some varieties more than in others, and has led people to think that “everbearing” sorts are being developed. Mr. Van Deman, writing in the Rural New Yorker, explains that with raspberries and blackberries the fruit buds are found quite early in the summer, and when the conditions are reversable for their development into growth they will sometimes do so at once instead of remaining dormant until the next spring, as they would normally do. These fall berries are sometimes of the largest size and the best quality, owing to the favorable weather that often occurs then. There are some cases of strawberries developing their fruit buds in

the fall, instead of the following spring. A new variety that was shown at the Pan-American Exposition last year is the most peculiar in this respect of any. It is a case of bud-variation of the Bismarck, which is a well-known variety. The new kind makes very few runners, but seems to develop excessively its old plants, and especially its fruit buds. After the hot weather of the summer is over, if the season is at all favorable for growth, the fruit buds come out and bloom and bear a heavy crop of excellent fruit. Sometimes the apple, pear, cherry and other trees develop a few of their fruit buds in the fall, but they are usually too late to produce anything more than partially formed fruit. The bush fruits, being of a nature to perfect their fruit in a short time, are far more likely to produce crops that will ripen.—*The Mail.*



THE VILLAGE PARK AND CEMETERY

IT is surely a sentiment worthy of recommendation, that leads us who live to pay respect to the dead, for to them we owe many debts of love and gratitude. A neglected graveyard with uncut grass, broken fences and stones that are falling over, seems to shame the living, and speak loudly of their lack of reverence for their ancestry.

The old fashioned cemetery graveyard was not planned with any taste, and the elevation over each grave made it almost impossible to keep the place in presentable condition. Such small, neglected burial places should be discouraged, and townships should be combined to set aside land in the most convenient location where a park-like cemetery could be laid out after a well prepared plan, and a superintendent engaged who would be responsible for its care and management. The municipal councils might have to lay out one or two thousand dollars at the outset, but, if well designed and well kept, the patronage would so increase that the sale of lots would soon make the cemetery a paying

investment, and the pride of the country side.

THE ENTRANCE.

From a business as well as artistic standpoint, a great deal of attention should be paid to the entrance. First impressions go a long way, either upon the mind of the visitor or upon the heart of the mourner. It does not seem half as hard to lay aside a loved one under the shade of some of nature's beautiful trees, inside a yard screened from the public view by hedge and vine, as it does on some bleak hill side, where stones stand awry amid the long grass, and the approach is through tumble down gates which give the impression that nobody cares. Our illustration (from Park and Cemetery) shows a beautiful vine-clad entrance to a cemetery at Newton Centre, Mass. ; and although this is a city cemetery, the idea can be adopted to the smallest village, for it is the trees and creeping vines that give the beauty, and not the expensive stone posts or iron fence.



FIG. 2522. A VINE CLAD ENTRANCE TO A CEMETERY.

UTILIZING NATURE'S BEAUTY.

Then, inside the gate, the visitor should not be too soon confronted with a battalion of cold marble. Rather should there be a separateness of family groups, by trees and shrubs, in such a way as to remind one of home life, and not of a vast public gathering. Many of our cemeteries are bare fields; when near at hand are beautiful rivulets and undulating surface, which could have been had for the same or even less money, and have been an unending source of satisfaction to the lot holders.

A GLIMPSE OF NATURE.

Fig. 2523 shows how a little stream, which perhaps could be stepped over or crossed with a plank, can be utilized for a rustic bridge and add wonderfully to the beauty of the landscape. This view is one contributed to Park and Cemetery by the late Joseph Meehan, of Philadelphia, and is a

glimpse in Fairmount Park, but a suggestion that can be adopted in even a village cemetery. The clump on the right, along the stream, is the odoriferous spice bush, which bears scarlet berries; on the left or the rising ground, is a native beech, and on the opposite side are more beech trees together with white, black and red oak trees, a charming collection in any Park or Cemetery.

FLORAL DECORATIONS.

We doubt very much the wisdom of encouraging the planting of annuals on cemetery lots, but the use of cut flowers is appropriate at any time. They are the expression of an abiding love, which can well be made by frequent visits with fresh emblems. For such gifts, nothing is so useful a receptacle as the floral trough, which may be made in any form and placed upon the grave, or removed at will. These may be made in any desired form, and being filled



FIG. 2523. A GLIMPSE OF NATURE.

with water will keep the cut flowers in a fresh state for a long time.

AN EXCELLENT PLAN FOR A TWO ACRE CEMETERY.

In view of the great need for a step forward in this particular department of landscape art, we reproduce from an old copy of this journal, a good plan for a village cemetery, with instructions for carrying it out.

AWAY WITH FENCES AND HEDGES ABOUT LOTS.

In the first place, an imperative rule should be established, that railings, copings, hedges, and fences of any kind, around cemetery lots be strictly prohibited. They are not only utterly useless, but they seriously detract from the natural beauty of the landscape. They render the tidy keeping of the ground almost impossible, and, as they become dilapidated with age, they are offensive to refined taste. It is a traditional notion which originated many hundred years ago when church-yards, improperly fenced,

were the only burial grounds. In the modern cemetery, the boundaries of lots should be marked by small corner posts, sunk in the ground so that the tops are level with the sod, in order that the lawn-mower may be worked without hindrance.

Any one who has been accustomed to see only the old style cemeteries, with lots fenced like sheep-pens in a show yard, and who will take the trouble to see an improved cemetery, where all enclosures have been abolished, will readily become convinced of the folly of expending millions of dollars on useless railings.

ONE MONUMENT ON A LOT.

Secondly—The height of headstones should be limited to two feet, or less. Few old style, tall, slab headstones are erected anywhere now, because of the difficulty of keeping them erect, their liability to be broken when leaning over, the certainty of their becoming moss-covered and their altogether unpleasing appearance. In a cemetery which is to be beautified they should be

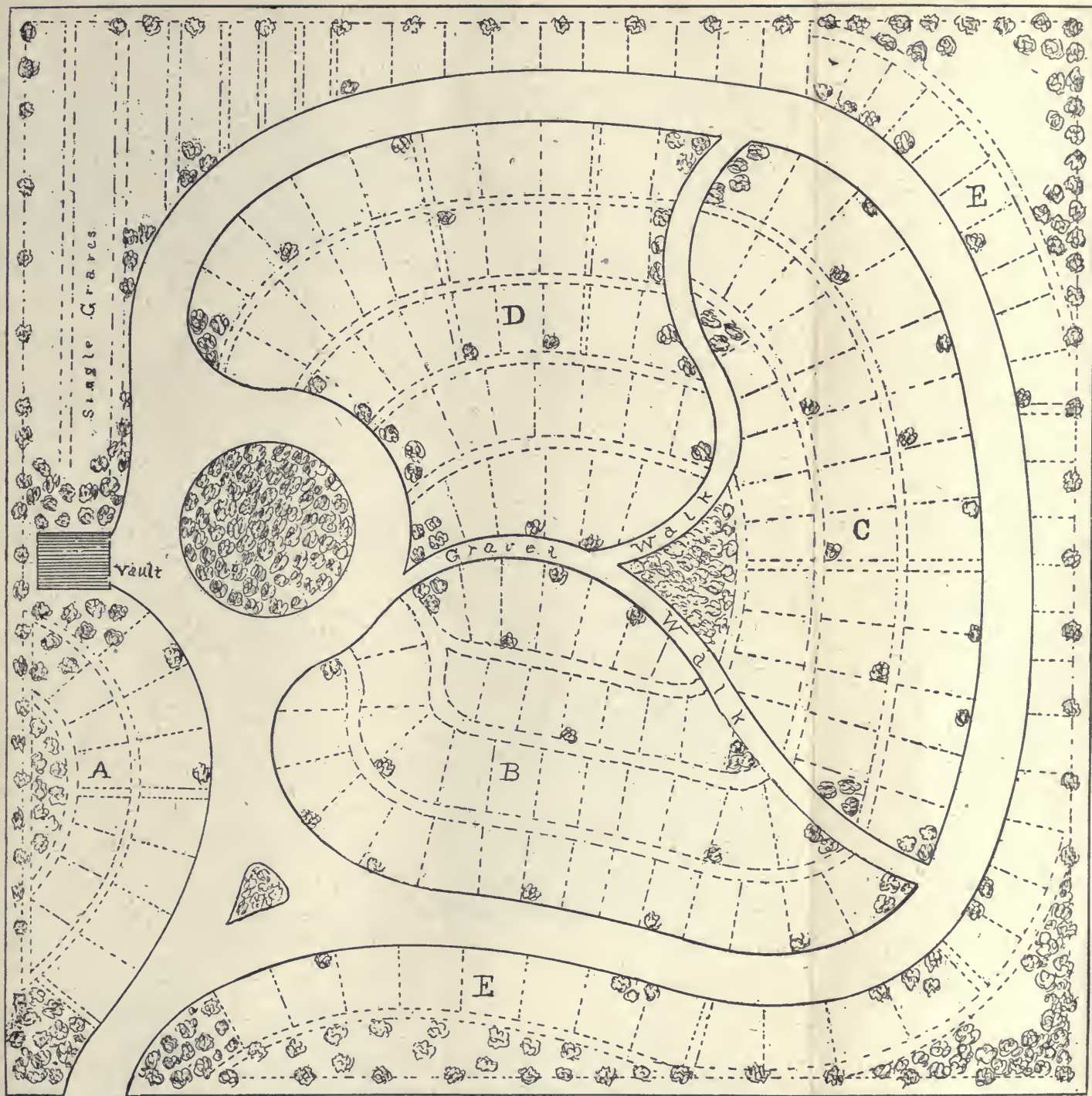


FIG. 2523. AN EXCELLENT PLAN FOR A TWO-ACRE CEMETERY.





FIG. 2525. GRAVE YARDS AS WE OFTEN SEE THEM.

strictly prohibited. A chaste monument, with space for several inscriptions, erected on a good foundation in the centre of the family lot, answers a better purpose than a number of headstones, and may be cheaper. Only one monument should be erected in a family lot. The initials should be cut on the top of all foot-stones, which should be level with the surface of the ground, permitting the lawn-mower to pass over them.

NATURAL SLOPES.

Thirdly—Such a thing as a raised lot, or terrace, must never be permitted, because it mars the beauty of surrounding lots, which are kept even with the natural slope of the ground. The desire on the part of some lot-owners, entirely devoid of taste for landscape gardening, to have their lots raised to a dead level without regard to surroundings, is one of the greatest difficulties which the cemetery managers have to contend against. Hence it is actually necessary that a rule be established prohibiting the raising of any lots more than four inches above the standard grade of the ground.

GRAVEL WALKS.

Fourthly—There can be but few well-kept gravel walks in a cemetery. They should be made only where there is likely to be so much travel that turf would be worn out. There is nothing so pleasant to walk upon as closely mowed turf; there is no walk more beautiful than one of nature's green carpet, therefore, the gravelling of paths or aisles between or around lots should not be allowed. Badly kept gravel walks are nearly as objectionable as rusty railings.

FLOWER PLANTING.

Fifthly—Many lot-holders make a practice of planting flowers on or about the graves of their deceased relatives. The sentiment is praiseworthy, and should be encouraged to some extent, but it is quite possible to have too much of a good thing. Some kinds of flowers are short lived, and their dying foliage gives a shabby appearance. I have often seen cemetery lots turned into flower gardens, which did not look nearly so well as other lots kept in neatly cut grass with only a small bed of flowering plants at the foot of the graves.

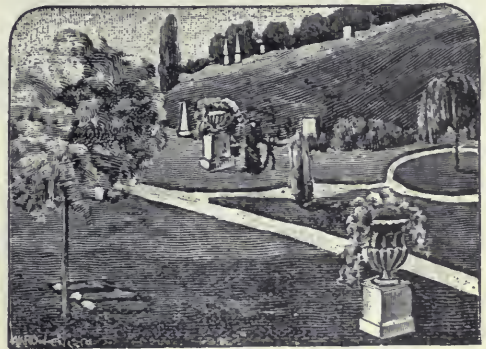


FIG. 2526. GRAVE YARDS AS THEY SHOULD BE.



FIG. 2527. FLORAL TROUGHS.

NOTES ON WINDOW PLANTS

RENEWING A GERANIUM—HOW TO WINTER
A CHRYSANTHEMUM—ROOT DIVISIONS—POT-
TING — WATERING — EXCELLENT POINTERS

BY

WM. HUNT,

SUPP. GREENHOUSES, O. A. C., GUELPH, ONT.



FIG. 2528. GERANIUM "WHITE SWAN" RECLAIMED
BY PROPER TREATMENT.

IN THE July number of Horticulturist two cuts are shown of a geranium plant that had become gaunt and unsightly looking from having been grown indoors for a long time. The cuts mentioned gave an illustration of the plant before and after the cutting back process.

The accompanying cut (Fig. 2528), from a photo, shows the same plant as it appeared early in November after having been grown in summer as recommended in above mentioned number of this journal. Although

the variety shown (The White Swan) is not one of the best for winter flowering purposes, it serves to illustrate what can be done—by only ordinary treatment—to reclaim an old unsightly looking geranium plant, and make it a nice bushy plant for the window in winter. This plant was grown outside in the open without the assistance of a greenhouse or sash, and without any special skill being bestowed on its culture.

CHRYSANTHEMUMS.

Some readers of the journal may, perhaps, have a chrysanthemum plant in their possession that has done flowering, and although anxious to keep it over for another season, or grow some young plants from it, scarcely know how to proceed so as to carry it safely through the winter.

I must first of all, however, say that from a commercial or professional point of view, I do not consider it worth the trouble and risk to attempt to keep over old chrysanthemum plants for flowering purposes the following season. At the same time amateur flower lovers do not always make as close an estimate on returns for labor expended as commercial florists have of necessity to do in connection with plant culture.

Taking the latter fact into consideration and making due allowance for a little laudable sentiment in this respect I will endeavor to give a few hints that may be of use to

those who wish to try and winter over a chrysanthemum plant.

After cutting down the old flower stem to within an inch or two of the surface of the soil in the pot, do not put the plant away down in a dark cellar as is often done. As a rule if this is done the plant is either allowed to dry up completely and die, or otherwise it is kept so wet that the plant is rotted away by successive waterings, given at a time when very little water is needed.

The best place to keep chrysanthemum plants after cutting them down is in a window in a cool room, where the temperature is about 45° or 50°. Plenty of light and sunshine will be beneficial to the plant so long as the room is not too hot to induce a weak premature growth of the young shoots that usually appear on the surface of the soil before the plant is cut down. As much fresh air should be given it as possible on fine warm days, avoiding cold, cutting draughts or winds. By keeping the plant in a cool place as described and by giving it all the cool air possible without chilling it, the growth of the young shoots before mentioned will be retarded and hardened. These last two points are the main ones to be considered to attain success, as the tendency and nature of the chrysanthemum is to grow all the time; unless given as nearly as possible the same surroundings it receives when growing naturally out of doors in winter, in the more temperate climates than ours where these plants are natives.

If kept in a cool place as described the growth of the young shoots can be retarded until well on into winter or perhaps early spring. Sufficient water must be given the plants to keep the soil in the pots only fairly moist. Water the plants so as to moisten all the soil when water is given, then withhold water until the plants show signs of dryness again. The top of the soil usually indicates by its lighter color the time when

the plants require water. Give the plants air on fine warm days.

When growth commences pinch off the tips of the shoots when the latter are three inches in length. This pinching should be repeated as often as required—usually every three or four weeks—until May, when the plants can be placed out of doors on fine days in a sheltered position to harden off the growth.

In a week or two the plants can be divided up into two or three pieces, if the size of the plant will warrant this treatment, and each division potted into a small sized pot. Or the whole plant can be potted into a pot one or two sizes larger, or it can be planted out in the open ground to grow on during the summer. The tips of the growth in any case should still be kept pinched off every three or four weeks as required until July, when they may be allowed to grow on without pinching or topping.

If young plants are required, instead of pinching the young shoots, they should be



FIG. 2529. CHRYSANTHEMUM.

cut off when about three or four inches in length. Cut them off just below a leaf joint, and insert the cuttings in sharp clean sand. A four-inch pot will hold several cuttings until rooted. Place sufficient small pieces of broken pot in the pot, before putting in the sand for the cuttings, to act as drainage; this prevents the cuttings from rotting oftentimes. Place the pot of cuttings in a warm shaded place in the window, where the temperature is about 60°. Pot the cuttings off singly into small pots when rooted, which will usually be in four or five weeks from the time they were put in the sand.

Chrysanthemums like rich, fairly light soil. Press the soil firmly around the roots when potting or repotting chrysanthemums, as loose potting does not suit them at any stage of their growth. The pinching and after treatment of the young plants will be about the same as recommended for the old plants before mentioned.

Aphis or green fly, and the tiny mites called red spider, are the only insects likely to trouble chrysanthemums in winter. Tobacco water will do away with the aphis, and a sprinkle of cold water, once or twice a week on the foliage, will keep down red spider.

Old plants of chrysanthemums can be successfully wintered over out of doors or in frames in favorable winters, if given some protection. Some of the hardy pompon varieties will even live in some of the most favored localities, such as the Niagara district, without protection, but the tender hybrid Japanese and Chinese varieties seldom winter over successfully even in frames, or when protected, unless great care in regard to hardening off, etc., is given them early in the season, and close attention to ventilating and covering given them during the changeable weather conditions experienced in early spring time.

Grafting Cacti.

SIR,—How do you graft the Cactus and what would you graft a Lobster Cactus on.

H. D. K.

The Lobster Cactus (*Epiphyllum truncatum*) succeeds best grafted on the *Pereskia aculata* or *Pereskia Bleo* stock. The *Pereskias* mentioned grow readily from cuttings placed in sand. Cleft-graft a small lobe or two of the Lobster Cactus on to the *Pereskia* stock in spring time, when the growth of the Cactus is young and in a growing state.

Clematis.

SIR,—How do you propagate *Clematis Jackmanni*, and can you recommend a good blue *Clematis*?

H. I. K.

The *Clematis* is propagated by layering, or

by root grafting. *Clematis Raymond*, pale blue, and *Clematis Hybrida Sieboldiana* are the best blues, the first variety preferred.

Guelph.

W. HUNT.

Tea Roses.

SIR,—Is it possible to make a tree rose from the H. P. Rose Mrs. John Laing grafted on the briar stock, so that the rose will be as vigorous and hardy as when grafted low down, or grown on its own roots.

Toronto.

H. S. KEDDLE.

Tree or standard roses of any kind are not a success in Canada, planted out of doors. Even low-grafted roses have to be protected by junction of stock and graft (or bud) during the winter months, by banking earth or some protective material around them unless very deeply planted.

Guelph.

W. HUNT.

BEAUTIFYING SCHOOL GROUNDS



FIG. 2530. SCHOOL HOUSE.

AN excellent address was given Thursday evening, 27th November, 1902, before the Woodstock Horticultural Society by Mr. G. R. Patullo, the president, from which we take the following extracts :

SCHOOL GARDENS.

I am in favor of both school gardens on school grounds and of scholars' gardens at home. Teachers' gardens have also been tried, and are common in some European countries, including Russia, Prussia, Austria, Belgium, Switzerland and Sweden. It may be that conditions here are not altogether favorable for teachers' gardens, as carried on in older countries. But I would respectfully suggest to every teacher that, if at all possible, he should cultivate a little garden, and from time to time make use of it as an object lesson to pupils.

Thus far there are only pupils' gardens in this country, and the movement is spreading rapidly, both in the United States and Canada. There are said to be over 100,000

school gardens in Europe. The first one started on this side was in Boston in 1891. There they had vegetable gardens as well as flowers and plants. The boys had individual plots where once a week they worked, planting, weeding and watering. The flowers were at first confined to ferns and a few annuals. But later, vegetables were introduced and with success. In one garden thus established, and promoted by the offer of prizes and seeds, where the vegetable plots were small, being only large enough for a short row of radishes, onions, lettuce, beans, two hills of 'potatoes, two cabbage plants, one cucumber vine and one tomato plant, the children thoroughly enjoyed the planting, caring of them, and reaping the results of their production. As a result "lettuce sandwiches" in spring were the chief feature of school lunches. Later on "cucumbers for breakfast," and "beans enough for dinner" were enjoyed.

In other cases flower beds or small vege-

table school gardens, were kept by a class or grade in the school. The individual plot is probably the preferable one, as thereby each pupil has a proprietary interest in his bed, and is likely to take more interest in it than if the ownership was only a common one.

WOODSTOCK ENTERPRISE.

In Woodstock we made a beginning three years ago of improving our school grounds by making a large bed of plants and flowers in front of the Central school. Last year the annuals were very satisfactory, and attracted a great deal of attention and favorable comment. In the autumn 1,200 tulip bulbs were planted in the same bed, and their appearance in the spring with their rich and varied colors (four varieties) was extremely effective. It did much to create public opinion in favor of this movement. And later in the season, in addition to the bed being replanted with tropical plants and showy annuals, the School Board at the suggestion of the Horticultural Society, planted a considerable number of shrubs and evergreens along the fence at the rear of the fine grounds. These have thrived well during the summer, and, with a little time will add greatly to the attractiveness of the grounds.

Similar action followed on the grounds of the Collegiate Institute, and also on those of the County Buildings, both of which have been thereby improved in appearance.

In addition to this the Horticultural Society has tried to do something in another direction to encourage the school children and citizens in the direction of floriculture and horticulture. Last year they offered money prizes for the best kept flower and vegetable gardens, and also for the best kept lawns and boulevards—competition being open to citizens having $\frac{1}{4}$ acre or less of ground. There was considerable competition and it excited a general interest throughout the city. The Society also offered prizes for the best kept home plots to be planted and

attended by pupils of the city schools. This competition was also fairly satisfactory.

It is interesting and satisfactory to note that a flower garden competition has also been held in Ottawa during the past two years at the suggestion and through the generosity of Her Excellency the Countess of Minto, who contributed therefor valuable gold and silver medals. The latter have been eagerly competed for and won, among others, by several millionaire residents of the capital. Thus has Her Excellency of Government House been doing something practical towards making our Canadian Capital City the Washington of the North.

But the Horticultural Society this year adopted a somewhat different plan. They distributed to three pupils in each department of the Central and public schools a number of plants and flowers, such as asters, zinnias, phlox, petunias and geraniums. These were distributed free, the only condition being that flowers from them should be exhibited—and a large number of bouquets were exhibited by the children as stipulated at the fall exhibition of the Society. In this way from eighty to one hundred pupils received plants and flowers, and had little gardens of their own at their several homes during the summer. I have reports from them all, and they are alike interesting, amusing and appreciative. Here are some of them:

"Right in every way."

"The geraniums are like bushes."

"I gathered beautiful flowers from them."

"Thank the Society for giving them to me."

"I picked flowers every day and put them in a vase in the dining room."

"One day I cut three dozen asters off my plants and they were very large. The geraniums also were large and bloomed all the time. I gave a great many bunches to my friends."

"Slips have been taken for another year from the geraniums."

"Plants were put out and bloomed profusely all summer."

"A garden which is my very own pleases and interests me very much."

And one little tot whose enthusiasm surpasses her grammar, exclaims: "Flowered like something awful!"

GENERAL PLANS.

So much for some practical results with which I am more or less familiar. It may be asked what general plans, if any, have you for improving our school grounds? That is not an easy question for an amateur to answer. But, generally speaking, it may be said that three sides of the school grounds might be bordered with trees, shrubs and flowers. The centre should be kept clear as a playground, and the front partially so. This depends upon the size of the grounds, their topography, and the location of the school buildings. Convenience and effect should be studied. The school house—ivy-covered where brick or stone—should be the picture, and the trees, shrubs and flowers the frame. The plot within the trees, shrubbery and flowers should be sodded and well kept. A lawn mower is of course a necessity, although I venture to say it is almost a stranger in our rural school grounds, and in a majority of these in towns and cities.

Of the trees to be planted around the grounds, I would suggest such common varieties as can be easily procured. Maples, elms, beeches, birches, basswood and evergreens. Many of the shrubs also may be got from the woods, and so of wild flowers. Of cultivated plants, a bed of bulbs (tulips preferred) is a great attraction in the spring, and later on, showy annuals, such as geraniums, petunias, *ageratum* and *salvia*, with

some common tropical plants such as castor beans, dahlias, cannas, and even a Scotch thistle.

GARDENING A RECREATION FOR SCHOLARS.

School gardens do not add an additional subject of study to the present curriculum. They are simply an educational object lesson for the use of the teachers and the information of the scholars. By their aid the teacher and scholar may enjoy, say once a week, a few minutes' pleasant recreation in the open air and sunshine, while the one is teaching and the other is learning a little of practical botany, chemistry, floriculture, forestry, drawing and landscape. Could there be a more delightful or profitable lesson for both teacher and pupil? And, what is also important, the experiment would cost little or nothing; not only so, but the movement might be extended in modified form to hospital, church and other public grounds, all of which could be thereby greatly improved and beautified.

But to begin and carry on this work will require the aid of an intelligent and sympathetic public opinion, progressive and enlightened school authorities, horticultural societies, municipal bodies and governments. All of these may do much to encourage teachers and scholars to develop our educational system in this pleasant and practical direction—a development, or rather advertisement which will improve the system and will make our schools more attractive, which will help to secure for them a larger and more contented attendance of the pupils, will inspire the latter with higher ideals of living and of citizenship, and will implant in their minds loving and imperishable memories of the happy days spent at the old school.

SUNSHINE OR SHADE FOR FLOWERS

PLANTS DIFFER—SOME WILL SUCCEED IN AN EAST OR WEST, SOME IN THE SOUTH AND A FEW IN THE NORTH WINDOW—WHAT MR. E. E. REXFORD SAYS ABOUT IT IN HOME AND FLOWERS.

AS all plants are not alike in their requirements as to sunshine and light, it naturally follows that the plants grown should be adapted to the particular place in which they are kept. Those liking a little sunshine, such as the begonia, fuchsia and calla, are satisfied with an eastern exposure, where they get the benefit of the sun early in the morning. The geranium, carnation, rose, heliotrope, and, in fact, the majority of flowering plants, which must have plenty of sunshine in order to fully develop their colors, find no other exposure so satisfactory as that afforded by a south window. A western window answers very well for many plants in winter, when the sun is not strong, but it is a poor place for them in summer, unless something can be done to greatly modify the intensity of the afternoon heat. Northern windows are not adapted to flowering plants, but shade-loving plants can be grown in them very satisfactorily. It will therefore be seen that all the windows of a house can be utilized for plant growing, provided we are careful in our selections and adapt the plant to the window it is to grow in.

It is safe to say that, as a general rule, light-colored flowers are best adapted to windows having an eastern outlook. But there are many exceptions, and the only way to make absolutely sure of the best exposure to give a plant is to experiment with it, and thus find out what conditions of light it does best in. If I were asked to give a list of plants adapted to the several exposures mentioned, it would be something like this: For eastern windows—

fuchsias, begonias, callas, Chinese primroses, *Primula obconica*, azaleas, plumbago, stevias, lobelias, and all kinds of bulbous plants. For southern windows—geraniums, roses, chrysanthemums, carnations, lantanas, oxalis, oleanders, abutilons, hibiscus, marguerites, and most of the plants having richly colored foliage. For western windows—bright leaved plants and a few of the more "accommodating" plants like the geranium, provided the effect of too strong sunshine is modified somewhat. For northern windows—ferns, araucarias, English ivies, palms, aspidistra, ficuses and seliganellass. Roman hyacinths, *Primula obconica* and Chinese primroses will often bloom well in sunless windows.

But the above lists are subject to great modification, because the florist who has "the knack" of flower-growing will contrive to so control conditions that he can grow almost any plant in almost any exposure. The sun can be tempered by shades and screens. Heat can be regulated, and water used in quantities to fit the losses by evaporation which will be different in different exposures. These things can not be put down on paper in such a manner as to make them plain to the reader, but they will come to the amateur florist by personal work among the flowers he grows.

We read a great deal about shade-loving plants. Now, "shade-loving" is a comparative term. It does not mean actual shade, in the sense ordinarily given the word, but it means an absence of sunshine. A fern is called a shade-loving plant, but it

will do just as well at a south window, if we keep it out of the sunshine, as it would in a window at which no sunshine enters. It is so with all plants not fond of sunshine. All the shade they need is exclusion from it, not, as so many suppose, a place in which light is so toned down that dimness results. A place may be shady in the sense that it is without sunshine, and yet it may be very light. And this is the kind of shade that shade-loving plants require.

If you are going to build a greenhouse on a small scale, like a lean-to, by all means, if possible, have the roof of it slope to the south. If you cannot do this, have it slope to the east. But never have the slope to the west, or the north, for one will give you so much sunshine that your plants will be scorched by it, and the other will give you none at all, in winter. If you can have one with a roof having two slopes—one to

the east and one to the south—by all means have it, as this will give you an ideal exposure, as it combines the advantages of early morning and mid-day sunshine, and nearly all kinds of plants can be so arranged that they will get just the amount of sun they need.

If you are going to build a greenhouse with an even-span roof—that is, the roof the same on both sides—let it run north and south. Do not make the mistake of having the building so high that the glass of the roof is several feet above the plants under it. The nearer you can get them to the glass the better it will be for them. In summer, the west side of an even-span roof can be covered with thin cloth, or washed with a mixture of lime, or something similar, that will obstruct the free entrance of the rays of the hot afternoon sun.

Yucca.

SIR,—Can you explain why it is that my *Y. filamentosa* does not bloom?

Probably the plant are not yet old enough to flower, or perhaps they require some fertilizer to cause increased vigor and growth.

Killing Poplars and Locusts.

SIR,—I see in your last issue that H. J. G. asks how to get rid of poplars and locusts without cutting them down. I do not know how to get rid of them without cutting them down, but I know how I got rid of the suckers after the trees had been cut down. My land was covered with suckers of poplar and I got an inch bit and bore a hole eight or nine inches deep in the stump and filled the hole with coal oil. This was twelve years ago, I have seen no suckers since.

Ontario.

L. J. WHITBY.

Hardy Climber.

SIR,—Can you recommend a suitable hardy perennial or annual vine to climb over a Persian Yellow rose tree, trumpet flower preferred.

H. S. K.

I cannot recommend you to grow any perennial vine over the rose tree mentioned, more especially a plant of the trumpet vine (*Bignonia Radicans*) as preferred by you, as the latter is a strong grower, and would probably kill out the rose tree in time. A few plants of morning glory (*Convolvulus*), or climbing nasturtiums, would be most suitable for the purpose, or a plant of *Cobea scandens* might do if it is a very large bush.

O. A. College, Guelph.

W. HUNT.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

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DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

WESTERN NEW YORK HORTICULTURAL TO MEET IN ROCHESTER IN JANUARY.

THE forty-eighth anniversary of the Western New York Horticultural Society will occur January 28th and 29th, 1903, at Rochester. Among the speakers will be Professor I. P. Roberts, of Cornell University; Dr. H. J. Webber, and Professor Harold Powell, of the Department of Agriculture, Washington, D. C.; Dr. W. H. Jordan, director of the New York Exp't Station; the "bug man," Professor M. V. Slingerland, always entertaining and instructive; Professor S. A. Beach, Dr. L. L. Van Slyke, Professor F. C. Stewart, and others. Mr. Alex. McNeill, prominent in the service of the Canadian government, will give a talk on "Grading and Packing," an object lesson.

About fifty years ago a few men interested in fruit culture met in Rochester, in response to a call which declared that the culture of fruits in this region was becoming an im-

portant branch of industry. Apple growing and all fruit raising was then in its infancy. Out of the meeting of earnest, enthusiastic men who responded to that call sprang the society, which, for nearly half a century, has devoted its energies and its money to the advancement of the art of fruit culture. The discussions of practical questions, in which every one is free to participate, is a popular feature of the annual gatherings, and it is no uncommon thing to hear well-to-do fruit growers attribute their success largely to their membership in the society.

Few people realize the extent of the apple industry of the United States. Thirty years ago a barrel of American apples was a curiosity in the English market. The total exports from American to European ports, for the week ending December 6th of the present year, amounted to 111,191 barrels. The total shipments of apples from American ports for the present year up to December

6th were 1,566,398 barrels. The total for last year amounted to only 469,385 barrels, an increase of over a million barrels in the present season, so far.

The meeting will be held in a new hall, a model of convenience and comfort. There will be a large fruit display and an exhibit of spraying and other devices. The dollar membership fee not only entitles members to the privileges of the meetings but also to a copy of the proceedings containing all the papers and stenographic reports of the discussions. The secretary, John Hall, Rochester, will mail a copy of the programme to those who send for it.

AMERICAN SPRAY PUMPS IN CANADA.

THE success of American Fruit Growers with the Hardie Spray Pump has led to so many inquiries for this pump from Canadian points that the Hardie Spray Pump Mfg. Co. has started a factory and opened a Canadian office at Windsor, Ontario, to supply trade on this side of the line.

The Hardie Spray Pump is one of the standard American pumps; all working parts are brass, no cast iron enters into its construction, and the solid brass ball valves make it a simple pump to clean.

It will develop a pressure of 100 lbs. with but little effort, and now that the Canadian demand can be supplied the Hardie will doubtless become as popular in Canada as in the States.

THE SMITH & REED CO. of St. Catharines, Ontario, have the finest and best selection of apple trees ever offered. Intending purchasers should write for full information before placing their orders elsewhere.

"COUNTRY LIFE IN AMERICA" for December is a large Christmas annual with a beautiful cover and a hundred superb illustrations, and colored supplements besides. The spirit of jollity of the season pervades the bulky number of winter sports, unusual house parties, Christmas homes and many things of winter at her best. Rudyard Kipling contributes the poem, "Pan in Vermont," deifying the man who, in winter, brings the seeds of phlox and hollyhocks into the snowbound country where Kipling once lived. Pre-eminent, however, is the profusion of elaborate pictures and the articles that have to do with hockey, skeeing

and tobogganing, snowshoeing, ice yachting on country lakes, fishing through the ice, and even the homely sports of skating, skate sailing and the pursuits that carry one into the deep woods. Altogether the elaborate make-up bespeaks the grand success of this new sort of magazine, the growing love of real sport in America, and the movement of the New World back to the garden and outdoor life of the Old.

BURLINGTON HORTICULTURISTS

THE annual meeting of the Burlington Horticultural Association was held last week. There was a good attendance of members and all present took an active part in the discussion on the various reports. President A. W. Peart occupied the chair and gave his annual address congratulating the association on the satisfactory season. The secretary's statement showed that seven meetings had been held during the year addressed by a number of local and visiting speakers, and that a balance of \$96.37 remained in the treasury. The directors reported on the conditions prevailing among the different varieties of fruit and the measure of success attending the season's operations.

The old officers were mainly re-elected and resulted as follows:

Hon. President, Geo. E. Fisher.

President, A. W. Peart.

Vice-President, J. S. Freeman.

Secretary-Treasurer, W. F. W. Fisher.

OUR BOOK TABLE.

SUN DIALS AND ROSES OF YESTERDAY. Garden delights which are here displayed in very truth, and are moreover regarded as emblems. Alice Morse Eavle, New York, McMillan Co., 1902. Price \$2.50.

Of sun-dials is this book, but not wholly a relation of their history, existence and manufacture. Of Roses, but not alone the story of their presence in the garden by the side of the Sun-dial. The volume treats of the Rose in History, in Poetry, in Symbolism in Romance, in Love, in the hearts of the whole world, and its significance in the society of the Rosibruicians. It also tells of the history of Sun-dials in the Orient, in Ancient Greece and Rome, on the Continent and Great Britain, and in Mexico and South America, and a full account of their existence in ancient and in present days. The Sun-dial in American history and as monument for heroes. Spot dials and noon marks, chilindres, pillar dials, travelers' dials, peasants' dials, shepherds' dials, and the dial in all its curious and nical forms and purposes. There is a chapter on the high significance of the Sun-dial as emblem, a symbol of life; with original designs suited to American dials, and also highly conventionalized designs from American flowers.

GINSENG. Its cultivation, harvesting, marketing and market value, with a short account of its history and botany. Revised, greatly enlarged and brought down to date. Illustrated, 144 pages, 5x7 inches. Cloth. Price, postpaid, 50 cents. Orange Judd Company, New York.

The impetus given to the American Ginseng industry through the appearance of the first addition of this book, has been almost phenomenal. Ginseng growing has made such rapid strides and demand for information has increased so greatly that a second extended edition has become necessary.



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The information contained in the present volume, which is nearly three times as large as the first, has been culled from a large mass of material and is, decidedly, the best that has appeared since ginseng culture first attracted attention in America. Every successful detail bearing upon successful ginseng growing is fully and minutely elaborated; and the author is confident that ginseng culture will grow in proportion to the application of intelligence to it. To any one intending to embark into this industry this book must prove invaluable.

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Directions for Starting.—Place ball in water for fifteen minutes and then suspend in any desired position; repeat every two days until growth is started, after which sprinkle occasionally as required. To use in fern dish, cut balls in halves, placing flat side down, thus getting two dishes of beautiful ferns. The Fern ball may be allowed to dry up at any time and be set away, and started again by watering same as before.

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niagara

FIG. 2531.

THE CANADIAN HORTICULTURIST

FEBRUARY, 1903

VOLUME XXVI



NUMBER 2

THE NIAGARA GRAPE

PERHAPS no grape, of British or American origin, was ever introduced with greater flourish than the Niagara, and perhaps none ever sustained a reputation more constantly or gave its introducers greater financial gain. Although the Concord, among the black grapes, stands side by side with this "Queen of White Grapes," in the vineyards and in the markets of Ontario, yet the originator of the Concord, Mr. Ephraim Bull, of Concord, Mass., lacking that magic touch that transmutes to gold, died a poor man; while Messrs. Hoag & Clark, of Lockport N. Y., who introduced the Niagara, made the enterprise a great financial success.

To-day the Niagara is recognized as the leading commercial white grape and has been planted more widely in Ontario vineyards than any variety except the Concord. For dessert purposes it is second rate, and must be well ripened to be even so classed; therefore it should not be planted in the colder sections, unless it be in certain favored localities.

The Niagara originated near Lockport, N. Y., in the year 1868, from seed of the Concord, and the vine bore its first fruit in 1872. The fruit was of such excellence

that Mr. Hoag, with growing confidence in its future, raised a few hundred vines and planted the first Niagara vineyard; at the same time giving a vine each to some prominent fruit growers, on whose reports he could have confidence. Later on he formed a company known as Messrs. Hoag & Clark, and the firm began to propagate the new grape on extended scale, taking great care to prevent the propagation of it by others, in order that they might themselves control the whole stock as long as possible. For many years they succeeded in their plans, and, instead of selling vines outright, they furnished them to planters on condition that the wood should be the property of the firm for a certain number of years, and that the fruit should be shared between the firm and the grower.

In the Canadian Horticulturist for January, 1880, we read as follows: "No plants of the Niagara grape have as yet been offered for sale, but Mr. Hoag is now propagating it extensively, and in due time it will be upon the market. The vine is an unusually strong, vigorous grower, as we had ample opportunity of observing when passing through Mr. Hoag's young vines, while the leaves are large and leathery, well calculated

to endure our sudden alterations of temperature and to resist the attacks of mildew. We were not able to find a leaf that showed any sign of suffering from any cause whatever. The bunches are of good size and very compact. The berries are of the same size as the Concord, and, when perfectly ripe, of a light, greenish, amber color. The skin is tough, does not crack so far as we can discover, and seems likely to bear handling and carriage well. The pulp is soft, juicy, sweet, of good flavor, with a little touch of that peculiar muskiness which shows its American origin. The fruit begins to ripen with Hartford Prolific, and will continue to hang on the vines, not only without injury but gradually improving in sweetness and richness, until hard frosts indicate the near approach of winter. We shall be very much disappointed if this grape does not take the same place among white grapes as the Concord has taken among the black. Everything about the vine indicates constitutional health, vigor and hardiness."

How truly have these prophetic words of Mr. D. W. Beadle, written twenty-three years ago, been fulfilled regarding this grape!

Of course, like all other introducers of novelties, Messrs. Hoag & Clark made some rather extravagant statements, as for example, the following paragraph: "The Niagara grape grows, thrives and produces its enormous crops in the cold of northern Canada, the heat of South Carolina, from New Jersey to Michigan, wherever planted, and can be shipped to the most distant markets; it is equalled by no other grape for vineyard planting; and every farmer in grape growing sections should have a large and substantial vineyard of Niagaras. If the instructions we give for its management are observed, it will soon pay off the mortgages and leave a balance to invest, besides furnishing a genuine and attractive business for the boys who get tired of the old ways of

small or no profits and leave home for other fields." It is quite true that very high prices were obtained for this grape when it was first placed upon the markets, the average being about ten cents a pound; and certainly, could such a price have been maintained for the Niagara grape with its enormous crops, farmers would very soon have made fortunes out of it; but unfortunately, as soon as the large plantations came into bearing, the price dropped to about the level of the Concord.

For several years we have been trying to open an export trade in the Concord and Niagara grapes, hoping that a market might be encouraged for them in Great Britain, in view of the high prices prevalent there for their home grown varieties; but so far we have been disappointed, and our shipments have brought nothing in return to pay for the grapes, after the expenses were fully met. Strange an Englishman should be so different here from the same man at home, for walking through our vineyards we notice he plucks and eats our Niagaras with as keen a relish as any native born Canadian; while in England he despises these grapes and lets them go begging for a buyer at twopence and threepence a pound, preferring to pay two shillings a pound for Black Hamburgs!

The vine of the Niagara is as healthy and vigorous as the Concord, and about as productive; the bunches are very compact and at the same time very large, sometimes measuring six inches long by four across and weighing nearly a pound. The berry is roundish; in color, pale green, turning pale yellow at maturity, and is covered with a delicate whitish bloom; the pulp is soft, juicy and sweet, of good flavor when fully ripe, but with a muskiness. The quality for desert purposes is very good when fully ripe, and for canning it is counted among the best.

REPORTS ON THE NIAGARA GRAPE.

R. B. WHYTE, Ottawa:—The Niagara grape is not considered satisfactory for this

district. The vine is a strong grower and sets a heavy crop, but our season is too short to ripen it perfectly, and there is not enough heat to give it its best flavor, poor as that is. The year before I threw it out, it mildewed badly with me, but that is not general. Grape growers here consider it too poor in quality for home use, and too uncertain for profit. Moore's Diamond is superior to it in every way for this district.

HAROLD JONES, Maitland:—In this district the Niagara is a productive variety, and forms large compact bunches, but only in the most favorable positions as regards soil and exposure does it come to full maturity. In a few cases it has been considered profitable to raise for sale, but it cannot compare in quality with the same variety grown in the Niagara peninsula, which it

has to compete against in our markets. It has not become a general favorite for home use. To become popular here it must be classed among the very earliest of the ripening varieties.

JAS. S. SCARFF, Woodstock:—In this district the Niagara seems to be one of the most profitable white grapes grown, because it produces such enormous crops, and besides it is a good shipper. It ripens both its wood and its fruit very well in this locality.

W. W. COX, Collingwood:—The Niagara does well in this district; the wood ripens well, and the fruit is abundant and good. I planted a vine ten years ago in an exposed place, without any protection, not even laying it down in winter or covering it in any way, and it has borne fine crops every year.

Notes and Comments

STONEY CREEK FRUIT GROWERS.

ON the tenth of January a fine Farmers' Institute gathering was held in the new Town Hall at Stoney Creek. As we entered Mr. T. H. Race, of Mitchell, was giving an address on Apple Culture, and it was evident from the close attention given him that the speaker was touching upon certain points of great interest even in this advanced fruit district. Among those present we noticed, Mr. Frank Carpenter, W. M. Orr, Joseph Tweddle, A. H. Pettit, E. J. Woolverton, J. B. Smith, E. D. Smith, M. P., John Nash, G. Millen and M. Pettit.

STOCK AND SCION.

THE old question of the influence of stock upon the scion was up for discussion. It has been long recognized that a tree may be dwarfed by grafting it upon a

slower growing stock, as, for example in the case of the pear when grafted upon quince roots, or in the case of an apple grafted upon paradise stock. It is also evident that a tree may be rendered somewhat better adapted to circumstances by its stock, as for example the peach tree for clay soils when budded upon the plum, or on the almond for dry chalky soils; or, in the case of the pear which does not thrive on a very light dry sand, but has been made to succeed much better when budded upon the Mountain ash. Hardiness has also been gained for a tree by top grafting it upon a hardy stock, and thus a variety weak in the trunk has been made to grow somewhat further north than usual.

A more unsettled question is that of the influence of the stock upon the quality of the fruit. Fifty years ago Downing wrote,

"A slight effect is sometimes produced by the stock upon the quality of fruit," but of late our fruit growers have been observing many instances of variation in color, size, quality of the same variety which they can account for only by the difference of stocks.

THE TOLMAN SWEET STOCK.

AT this meeting Mr. Race showed a beautiful sample of Ben Davis, bright in color, large in size and unusually humped about the basin. This apple he said was grown from Tolman Sweet, and he could account for its superiority only by this fact. He also showed a beautiful sample of Spy, unusually bright in color, which was grown upon a graft set twelve years ago on a Tolman Sweet, the latter being at that time only four years planted. Not only was the fruit remarkably fine, but the tree was so productive that it was necessary to thin it freely. Anyone wishing to verify his statements could see the trees in the orchard of Mr. Albert Jacobs, near the village of Blyth.

There was therefore some ground for the advice given by Mr. Race, to plant an orchard of Tolman Sweet trees on which to top graft our best commercial varieties.

IMPORTANCE OF CAREFUL SELECTION OF CION.

THE writer called attention to the importance of greater care than is usually taken in the cutting of cions for grafting. Nearly every grower must have noticed a great variation in samples taken from different trees. Greenings, in some instances, are very evenly rounded in form, and have a beautiful red cheek, while in others they are somewhat ribbed, and entirely lacking in color. The King apple, usually a scant bearer, has in some instances shown an inclination to produce more abundantly; and the Snow apple is often so distinct in coloring that many have claimed that there are distinct varieties. It is there-

fore evident that there is individuality in trees as well as in animals, and, if we would attain the highest success in fruit growing, we must propagate these individual excellencies, by a more careful selection of cions.

DOUCIN STOCK FOR THE APPLE.

IN this connection we note that Prof. Beach, of Geneva, N. Y., has been experimenting with dwarf apples with promise of advantage in these days when we must spray and fumigate and thin and treat so much more carefully than in former years. It is stated on good authority that in England the planting of apples on dwarf stock is increasing of late years for commercial purposes. Here is what Mr. S. T. Wright, a prominent English fruit grower, says on this subject: "I do not hesitate to say that the most paying system of cultivating apples is the growing of a limited number of varieties as dwarf trees on a soil which has proved capable of growing full crops of large apples. The prominent advantages of dwarfs are, (1) Quick returns; standards must do exceptionally well to produce anything like a paying crop in twelve or fourteen years, while dwarfs begin to bear the second year after planting; (2) all work can be done, from the ground level, while standards require ladders. Mr. L. R. Castle, in an essay before the Royal Horticultural Society, states that the most prolific varieties of apples on dwarf stock, planted ten by ten feet, or 435 to an acre, taking an average of ten years, will yield from one-fourth to one-half bushel per tree per year, or from one to two hundred bushels per acre, while well established standards would produce 280 bushels per acre, or more."

Whether on account of the insect and other pests which we have to treat, it is not desirable to plant dwarfs in Ontario, is of course still problematical, but it is evidently worthy of consideration and perhaps should be well tested at our fruit stations.

A WONDERFUL APPLE CROP.

"APPLES can be made to pay," said Mr. E. D. Smith, Winona, "and the success of Mr. Joseph Tweddle, Fruitland, in taking in hand several orchards which had been neglected by the owners until they were a mass of wood, tangled together and left without defence to the ravages of insects and fungi, is a proof of my position." A few years of careful cultivation, pruning and spraying had brought these orchards into fruitfulness, and well repaid Mr. Tweddle for his speculation, and the owner for his investment.

Mulching versus cultivation for an apple orchard was also discussed, and, as Mr. Smith stated, the former is no doubt ideal, providing a sufficient quantity of material is at hand. It saves a great deal of labor and it does not injure the tree roots. Mr. Race objected strongly to deep ploughing in an orchard because it disturbs the young rootlets which are at work drawing moisture and nourishment from the soil.

In illustration of what can be done in apple growing, if the orchard is properly cultivated and sprayed, Mr. Smith cited one he had visited by request last summer. It was situated in New York State between Lockport and Rochester. He found fifty acres of Baldwins, every tree a picture and carrying over ten barrels to a tree. There were only twenty trees to the acre, but they reached an immense size, and were weighed to the ground with their enormous load of apples. It was estimated that the yield would not be less than 10,000 barrels of apples, and all perfectly free from scab; the crop must have given the owner a small fortune in a season like this when prices have ruled so high.

The only explanation of this phenomenal success given by the owner was, that for the past seven years he had sprayed regularly and faithfully; for previously he had had very little fruit, but since he had given

his orchard this treatment, he had never failed to have a good crop.

GOOD VARIETIES OF GRAPES.

MR. E. D. SMITH, of Winona, was asked to talk on "What varieties of fruit to plant to suit the requirements of the trade." In speaking of grapes, he believed that the destruction of grape vines by the cold winter three years ago had not been made up by the planting since that time, and consequently the price of this fruit had advanced, until wine makers even had been offering \$25 a ton for Concords. At this price he believed there was money in growing this variety. Compared with Niagara he had more confidence in the Concord, unless on certain rich soils in southern parts of Ontario; but, generally speaking, the Concord was more reliable. He had himself planted an acre of Campbell's Early which had this year borne its first crop. The fruit was as early in ripening as Moore's Early, the vine seems to be productive and the berry is large and of much better quality. The only defect he had observed was, that occasionally a vine had clusters with a good many small green berries, and only for this defect he would be inclined to plant this variety in preference to any other. Lindley was too uncertain. In his vineyard of 1,000 vines he had gathered one year an average of 30 pounds to the vine, for which he had netted 4c. a pound or \$1,200 for the crop; but for the succeeding two years he had only harvested about 3 pounds to the vine. He had therefore lost confidence in this grape for profit. Ver-gennes was profitable, but was subject to leaf blight, which, however, could be controlled by use of the Bordeaux. Of the Rogers grapes he thought highly of the Agawam, especially for sale in the Niagara district to buyers who want a good shipper. It keeps and it carries well and is therefore very suitable for sending to the North-west. In other places, where it was sold for table

use, it did not bring as high a price as its merits deserve. The same could be said of the Wilder, a much superior grape to the Concord, but in the Montreal market it sold for only about 1 cent more a pound than the latter variety, with which it is not to be compared in productiveness.

SPRAYING.

THE varied duties of the farmer, in Mr. Race's opinion, made it very difficult for him to find time to spray his apple orchard as often as is laid down in the calendars, and, since the early sprayings are the most important, he recommended that the farmer be urged to treat his trees to at least three applications, (1) with copper sulphate before the buds open, and (2) with Bordeaux as the bloom falls, and (3) again about two weeks later. "Of course," said he, "the fruit grower, who has *nothing else to do but grow fruit*, should give his trees several more applications!"

Of course the Bordeaux is much more troublesome to prepare and to apply than a simple dilution of copper sulphate and water, which may be equally effective for the first application if every part is covered. The addition of the lime, however, shows at once what portion of a branch is covered; besides it remains upon the tree a longer time.

As to the quantity of copper sulphate to use in the early applications, without lime, it has been usual to advise for Downy mildew and black rot of the grape and for the apple scab, 1 pound to 5 gallons of water, to be applied in winter or before the buds swell; and for peach leaf curl, 1 pound in 25 gallons of water. Fulton, of the Michigan Station, has been experimenting with copper solutions of varying strength for peach curl, and found that trees sprayed early with 1 pound of copper sulphate to 100 gallons of water showed no more curl than trees sprayed with 1 pound of copper sulphate to 20 gallons of water.

PLUMS OVERPLANTED.

FROM the low prices obtained for plums in our markets for several years past it is evident that we are planting too many; more than our home markets can take at paying prices. If we had an export trade in them, as we have in apples and in pears the case would be different; but even if our cold storage conditions would land them safely in Great Britain, they are not wanted there at prices that would pay for such a long shipment. Our only hope for an outlet for this fruit seems to be in the great North and North-West, as soon as better rates and conditions of carriage are provided. "In dry seasons," said Mr. Smith, "when the plum is not much effected by rot, we can handle the crop fairly well, but in wet seasons when the rot is prevalent, we can not dispose of the crop." There is room for a large quantity of Reine Claude and other plums of the Gage family for canning, for there is an unlimited market for "canned gages" both in the home and in the foreign market. Then there is another class of plums for which Mr. Smith finds a good demand, viz., such good late varieties as Monarch, Grand Duke, Black Diamond, etc. These are large and of good quality, and are suitable for shipping North and West. Then there is the Damson, a variety too much despised because of its small size; but there are people who will have this plum, and it would pay to grow more of them than we do at present.

THE KIEFFER PEAR.

"HOW is it?" some one asked Mr. Smith, "that Kieffer pears have been so unsalable this year?" "Well," he replied, "I do not think it is because they are overplanted; I think it is because of the enormous apple crop; and the canners were so busy canning up the immense quantity of seconds which they could buy at low prices, that they had no time to go into the pears.

The Kieffer is used chiefly for canning; indeed, there is no pear that is superior to it for this purpose, not even the Bartlett. As a matter of fact canners label their canned Kieffers, Bartlett, because when put up they cannot be distinguished by the public from that variety, either in appearance or in flavor. So I do not see that we need expect to see Kieffers sold again at as low a price as they have been this year." "Do you think," asked Mr. M. Pettit, "that all the canners in the country could possibly handle the whole crop of this pear that will be produced five years from now? The pear will never find sale in the open market for eating purposes, and must be grown for canning only, and I am afraid it will be a drug on our hands." Mr. Pettit spoke from personal interest, for he has one of the largest Kieffer orchards in the section. "Well, I cannot say," said Mr. Smith, "but I think it is a great mistake for fruit growers to change their notions on varieties so often. One season's experience of low prices for any special fruit will lead to its utter rejection, when perhaps the year following it will be the best paying fruit in the market. The Longhurst peach did not pay last year, so no one will plant it next spring, but if the Crawford should be a failure next season, then the Longhurst will be in demand, and

growers will wish they had included it in their planting."

FOUR EXPORT PEARS.

SIR,—What four varieties of pears would you recommend for export, to be planted near Toronto on high well drained clay loam?

Toronto.

R. BRACKON.

We would place Duchess first; it is large, of good quality and carries splendidly. Judging from one year's experience, we would be inclined to make Pitmaston second for export. Both these do best grown as dwarfs. Bosc is another excellent export variety, carries finely, and is excellent in quality. The fourth would be Anjou, for it succeeds well in Canada, and carries well. We do not recommend planting plums and pears together; it is better for harvesting the fruit and for general management of the orchard to have each fruit in a separate plot.

THE EXPORT TRADE IN APPLES IN 1902.

A PAMPHLET has just come to hand showing the exports of all kinds of produce from the port of Montreal during the past year. From the chapter on apples we take the following table, showing how our Canadian apples have been distributed among foreign markets during the past five years:

	1902.		1901.	1900.	1899.	1898.
	Bbbs.	Cases.	Bbbs.	Bbbs.	Bbbs.	Bbbs.
Glasgow	188,270	33 793	73,093	128 378	128,399	147,624
Liverpool	169 813	7,697	49,058	95 983	99,127	177,334
London	74,630	762	284	12,497	5,126	50,708
Manchester	30,444	269	129	14,271	20,686	32,832
Bristol	6,331	1,125	53	3,231	4,613	17,911
Aberdeen	6,068	.....	1,046	8,601	.....	5 693
Belfast	1,642	3,367	24	4,154	114	1,609
Hamburg	1,829	2,120	26	32	8,661	1,714
Cardiff	2,370	.....	.....	.....	.....	.....
South Africa	250	1,828	.....	.....	.....	.....
Leith	458	183	2	158	1,179	.. ..
Antwerp	36	.....	.....	.....	.....	.....
Others	1,359	.....	22	374	335	1,251
Totals	483,496	54,144	123,737	267,701	267 359	456,236

For a great many years Liverpool, London and Glasgow were the only foreign points to which our apples were consigned, but of late one port after another has been calling for them until now we have before us the choice out of at least a dozen foreign markets competing for our shipments. This competition, together with the improved methods of growing and packing, which our association is rapidly bringing about among Ontario Fruit growers, means much for the future in apple growing in Ontario. Among the more recent markets calling out to us for increased shipments of apples, is Hamburg, a distributing centre for the great cities in the interior of Europe. As a rule green apples are not much in demand in Hamburg, because green cooking apples are produced in great quantity in Germany; but our fancy red stock is highly prized. Mr. Tweddle of Fruitland, however, says that his shipments of Greenings have created a great impression on account of their excellent quality, and he believes he will succeed in working up a demand for this variety.

Of the markets for our apples which have opened up during the season just passed is the great country of South Africa, to which a shipment has been made of 250 bls. and 1828 boxes, Burlington and Grimsby contributing. We shall await the results with great interest.

In the pamphlet referred to, credit is given to the Canadian Fruit Marks Act for the establishment of the Canadian XXX, or No. 1, brand as fairly uniform, a thing that has never been known before. This brand seems likely to gain the confidence of buyers in foreign markets, and to lead to f. o. b. sales, at shipping points in Ontario, a condition which will be of the utmost value to our fruit growers.

THE NIAGARA DISTRICT FRUIT GROWERS.

THIS body of practical fruit growers met at St. Catharines on Saturday, the 3rd of January, and in the election of officers

for the new year chose Mr. D. J. McKinnon, of Grimsby, president, and Mr. C. E. Fisher, of Queenston, secretary. The Fruit Marks Act was criticised, (1) as causing many growers to be afraid to pack their own apples, and (2) as leading many growers to mark their first-class apples No. 2, in order to be quite safe from the dreaded inspector; and (3) as being a violation of individual rights. Inspector McNeill was present and explained that the inspectors were the friends and not the enemies of the fruit grower, and that there was no inclination on their part to prosecute except in cases where there were evidences of intentional fraud. On the whole, a general feeling of approval of the Act prevailed, unless with regard to one or two minor clauses, which may be more carefully considered at a later date.

THE TRANSPORTATION OF FRUIT

WAS one important topic under discussion, and it resulted in the appointment of Mr. D. J. McKinnon, the president, and Mr. W. H. Bunting, president of the Ontario Fruit Growers' Association, as a delegation to Ottawa, in company with the representatives of other bodies, to urge upon the Government the appointment of a Railway Commission.

The discussion on this subject was ably introduced by Mr. W. L. Smith, Secretary of the Farmers' Association and Editor of the Weekly Sun, and from his address we take the following points:

"The importance of the question of transportation to the Niagara fruit-growers is indicated by the statement that the district is producing about \$2,000,000 worth of fruit annually, and that practically all of the fruit is carried to market by rail. Under present conditions the railways are able to say how much of the price received for the fruit produced shall go to the grower and how much shall be retained by the carrying company for taking it to market.

AN UNFAIR DIVISION

"Are the rates charged for carriage fair rates? Growers say, taking the season through, and lumping express and freight rates together, that the carrying companies receive for carrying fruit to Montreal one-third of the return which the goods sell for on arrival.

"In other words, the fruit-grower, who takes all the chances of the season, who produces crops on ground valued at town lot prices, who pays a wage bill equal to that of a fair-sized factory, receives \$2 as against \$1 received by the carrying company (which takes no chances) out of every \$3 worth of fruit produced. Surely that is not a fair division.

"Ten or twelve cars of fruit are picked up in the district daily; when carriage is by freight the average rate is about \$60 per car; the cars, as part of a mixed train, are taken to Montreal in 36 hours. Surely \$600 or \$700 is altogether too much to charge for hauling ten or twelve cars of fruit some 400 miles in a day and a half, particularly since these cars form part of a general freight train.

COMPARISON WITH RATES ON OTHER PRODUCTS.

"The rates charged on fruit are excessive as compared with rates on other forms of produce. A rate of 34 cents a barrel on flour was quoted last week from Listowel, Ont., to Bristol in England. At the same time the rate on apples was nearly 90 cents—almost three times as much as the flour rate. Apples receive no better care in transit than flour receives. Last fall Mr. McNeill saw stacks of apples in barrels, while awaiting shipment, standing in the open, exposed to a downpour of rain, at stations in Western Ontario. Is the lower rate on flour due to the fact that millers have a strong, aggressive organization, which can force concessions from railways, while fruit-growers have not?

"Fruit-growers are not only discriminated against as such, but they are discriminated against as Canadians. Mr. Boulter, the Prince Edward County canner, has been able to secure a rate on peaches from Michigan to his factory in Prince Edward so much lower than the rates from Ontario points, that he found it cheaper to buy peaches in Michigan and pay the duty in crossing the border than to buy in Essex, where no duty had to be paid, and at points a good deal nearer his factory than Michigan is. And still the peaches in both instances were carried over our own lines—lines which have been built largely out of bonuses paid by our own people."

PLANS FOR SPRING PLANTING.

DURING the months of February and March the fruit grower should carefully consider the number and the kinds of fruit trees and plants required to make his business give him the best returns. He will find the most up-to-date notes on desirable varieties in the report of the fruit stations of Ontario, which may be had for the asking from the Department of Agriculture, Toronto, and with these and his own experience no mistakes ought to be made. If a larger order of trees is wanted it will pay to visit the nearest nursery, select the stock of the age and size desired, and secure it at first hand, thus saving the expense of an agent coming about to seek the order, and again to collect the money. If a farmer can plan a year ahead on the varieties required in his orchard, it might pay him to buy young trees, perhaps one year old, and grow them on his own grounds until ready for them, and thus not only buy at a low price, but improve the root system of the trees by the more frequent transplanting, so that there would be no stunting of vigor in the final planting.

The following table, showing the number of trees needed to plant an acre of ground,

may be of service at the present time when so many are estimating how much stock they need for spring planting :

NAME OF TREE OR PLANT	DISTANCE APART	NUMBER PER ACRE
Strawberries	3 ft. by 1 ft.	14,520
"	4 ft. — 1 ft.	10,890
Raspberries	4 ft. — 1 ft.	10,890
"	6 ft. — 2 ft.	3,630
Blackberries	6 ft. — 2 ft.	3,630
Gooseberries	5 ft. — 4 ft.	2,178
Currants	6 ft. — 4 ft.	1,185
Peaches	15 ft. — 15 ft.	193
Plums and Pears	20 ft. — 20 ft.	108
Apples	30 ft. — 30 ft.	48
"	36 ft. — 36 ft.	33
"	40 ft. — 40 ft.	27

A LEGAL APPLE BOX WANTED.

SIR,—I am instructed by the directors of the British Columbia Fruit Growers Association to ask for the co-operation of your association in an endeavor to induce the Dominion Government to establish a legal box for the sale of apples. The box which we have found to be the most convenient has a capacity of 21 x 10 x 11 inches and we would prefer that capacity made legal, but we are more interested in having a lawful box than in the size of same. If your association will give this matter the consideration it deserves and join us in an appeal to the government to establish a uniform standard box, the question will be settled at the next sitting of parliament and a source of annoyance to dealers and consumers will be removed.

W. J. BRANDRITH,

Sec'y, British Columbia Fruit Growers'
Association, New Westminster, B. C.

At the Walkerton meeting of our Ontario Association, last December, it was agreed to adopt an apple box measuring inside 9 inches deep, 12 inches wide and 18 inches long, for export. This is practically the California pear box, and we see no reason for making the apple box different, for many sizes are a nuisance when packing cars. We have been using a fifty pound box, 10 x 11 x 22, of which three filled a barrel, but in Great Britain we found this box was selling for the same as the Tasmania box, which is a forty pound box, and of which there are four to the barrel. We also find that a forty pound box is more wanted in the British market, and for these reasons we adopted the sizes above described.

We propose that all the Fruit Growers' Associations in the Dominion try this box for one year before we ask for any Act of Parliament. In Ontario we can get this box made dovetailed, of $\frac{3}{8}$ stuff, for \$10.00 per hundred. It will hold three layers of apples, instead of four which we put into our bushel box last year.

DUCHESS PEARS IN GLASGOW.

MR. JOHN BROWN, Govt. Agent, Glasgow, writes: "Grimsby and Burlington shippers have yet to establish a name for uniformity. Some of their boxed fruit I have reported as poor, while other lots are more than excellent. I saw small Duchess pears, which had been held three weeks in Glasgow and were not colored in the least, being immature. Near them I found some of the finest Baldwin apples that have been on any market this season."

Prices for Canadian pears have gone up lately in the British market, in some cases to 8 and 10 shillings per half case. It is needless to say that this will give our Canadian growers a return much above anything they could expect in our own markets.

Mr. W. A. MacKinnon, Chief of the Fruit Division, makes the following comment upon these prices: "It would be folly to expect the same quality of pears to bring the same prices again, for many of the Duchess were simply wretched. Kieffers were fair for the variety, but not equal to last years in quality. They looked well, however, which the Duchess did not. You only need to compare the prices paid for Canadian pears with those for Californian on the same day, to see the relative quality of the Canadian. It certainly will not be safe to send such a quality of pear to this market when there is the usual supply of dessert pears."

THE FARMER'S WOOD LOT

THE value of a wood lot to a farmer is this year more apparent than ever before, in view of the very high price of fuel. So, during these cold winter days, when the thermometer is at zero, and coal cannot be had at any price, and wood is being sold at prices almost ruinous to the buyer, some of us are conscious of an unusual depth of gratitude to our fathers and grandfathers, who had wisdom enough to save for us a portion of the original forest as a wood lot; and we have a keen sense of comfort in drawing on our fuel supply from a source that is entirely out of the control of miners or operators.

At a recent meeting of the Experimental Union, at Guelph, Mr. R. D. Craig, a graduate of the O. A. C. and a specialist in Forestry, stated that a fair estimate of the average consumption of wood per family is from fifteen to twenty-five cords per annum. It is also estimated that a wood lot will give an annual crop of about three-quarters of a cord per acre. At that rate it would take from eleven to nineteen acres in wood land to keep the average family in fuel. If these conclusions are correct there is probably still a sufficient supply of timber to keep our people in fuel, provided the farmer's wood lot is properly cared for. But Mr. Craig believed there was ground for fear that, unless the present methods are changed, the wood supply of Ontario will be practically



FIG. 2532.

exhausted within ten years, and the whole province be dependent upon coal.

With such a warning as this sounding in our ears, surely those of us who have upon our farms a wood lot, small or large, will place greater value upon it, and give it as good attention as we do any other part of the farm. Cattle should not be allowed to roam about in it and browse the young growth, which, if allowed to grow untouched, would be a continual source of supply of trees to replace the older trees cut out for fuel. Anyone, who has walked through his wood lot in spring time, must have noticed the great number of little seedlings of maple and other trees which have started to grow, and which never come to any size where cattle are allowed to browse.

In reply to his enquiries of farmers as to

value of their wood lots, Mr. Craig said their estimates varied from twenty dollars to three hundred dollars, the average being fifty dollars per acre. This he considered a moderate estimate, for said he, with wood

worth four dollars a cord, about eighty dollars worth of fuel would be taken out a year, to say nothing of the value of fencing material, etc.

AN INCIDENT IN GRAPE GROWING

BY

ALEX. McNEIL, ESQ.,

ACTING CHIEF FRUIT DIVISION, OTTAWA.

THIRTY years ago a few small vineyards demonstrated what Essex County could do in grape growing, but it was not until the early '80's that the grape fever was epidemic. Hundreds of acres were planted, and the Essex Concord grape became the standard of excellence. Many of these earlier vineyards made money for the owners, and encouraged planting far beyond the needs of the market for table grapes, and the inevitable fall in prices came all too soon.

But the low prices of grapes stimulated another industry—winemaking. A year or two more and winemaking had reached the limit of the home market and was accumulating stock that might, in the ordinary course of events, have impressed the foreign markets, for the largest Essex winemakers did not follow the foolish practice of attempting to imitate foreign wines of all sorts, but made a pure, sound claret, with characteristics of its own, that placed it on a par with the best foreign wines of its class.

No doubt capital would have been forthcoming soon to place this upon the market, had it not been for the unfortunate frost of 1899, that root-killed not only the peach orchards of Essex, but 75 per cent of the vineyards as well. With grapes enough still for table purposes and no great demand from the winemen, there was little encouragement to

replant, yet prices were somewhat better and vineyardists, if not buoyant, were at least hopeful.

This, however, was the last gleam vouchsafed to the unfortunate grape-grower. In 1901 the black rot appeared in several of the older vineyards. This year, favored by the excessive humidity of the growing months, the rot made almost a complete sweep. Occasionally a grower might gather a few baskets in some favored spot, but complete and absolute failure was the rule. The writer, with twelve acres of good vines, the remnants of twenty-five acres, did not gather one basket of good fruit. A neighbor, with thirty acres, did not put a picker in his vineyard. The result is that grape growing will cease in Essex except for local markets. Of course the rot can be controlled by spraying with the Bordeaux mixture, but such additional expense would render competition hopeless with sections where the rot is not yet known, and where freight rates are not so high.

And thus will pass out of existence vineyards that once were measured by hundreds of acres, and with them may go some of the fond dreams of the planters. Yet the stern discipline of partial failure is sometimes necessary to develop the full measure of the strength of the individual as well as the greatest capacity of a country.



FIG. 2533. A BEAUTIFUL SITE FOR PARK OR PLEASURE GROUNDS.

OUR OLD FOREST TREES

THE engravings which accompany these remarks are taken from the Third Annual Report of the Canadian Forestry Association, a volume which is of great value to Ontario fruit growers and farmers, and may be had free of charge from Mr. E. Stewart, Dominion Superintendent of Forestry, Ottawa. The scene in Fig. 2533 is one that was taken in a Canadian forest some forty years ago, and shows the old style of lumbering, with the "caboose" in which the lumbermen slept and cooked their meals, and which was heated by a fireplace of earth in the centre. Interest in the picture is added in view of the fact that on the recent visit of the Prince of Wales to Ottawa, a shanty of this class was erected for his entertainment, to show the character of a lumber camp in Canada.

This illustration also serves to point out to our readers what unfortunate lack of forethought has hitherto characterized the lumberman's work in Ontario; what utter disregard of the future beauty of the landscape.

Here, for example, is a magnificent location for a home or a public park, which is being ruined because no one in authority thinks far enough ahead to take into consideration anything more important than present convenience.

The new settler who has taken up his farm in "New Ontario" is guilty of similar thoughtlessness, and begins to clear a place on which to build his house by destroying all forest trees about it. Grand old maples, elms and pines are recklessly cut and burned, which, if left in groups around the boundaries of the house yard or in single specimens here and there, at the side and rear, would in time come to be recognized as the chief ornaments of the homestead, and worth hundreds of dollars each.

The very abundance of these magnificent giants of the forest in Ontario lead to their wanton destruction, while on the vast naked plains of the great North-west, what would the settler not give to have these fine old trees with which to shade his home and give

beauty to its surroundings? The two other engravings we use because they serve to show in a most striking manner how important a clothing of trees is to the surroundings of a home. The first shows the home of Mr. S. A. Bedford, Supt. of the Experimental Farm at Indian Head, N. W. T., before any trees were planted, while the other shows the wonderful effect of a successful attempt to beautify the same with certain hardy varieties of trees and shrubs.

Granted that, as in this instance, a wonderful effect can be produced within a few years by recent plantings, yet, never in any man's lifetime, could these magnificent old trees be replaced, which now, in so many instances, are being cut down without the least hesitation in our province.



FIG. 2534. BEFORE TREES WERE PLANTED.

NEW FRUITS.

THE MAYNARD is a new plum of Luther Burbank's, which will be sent out next spring. It is claimed that this one surpasses, in quality and beauty of fruit, any plum Mr. Burbank has yet introduced. We notice that nothing is stated regarding its productiveness, and this has been the disappointing feature with that otherwise excellent variety, the Wickson.

THE BING CHERRY is not yet tested sufficiently for us to give any definite statement of it. It is a large, dark red or purplish cherry of the heart-type, which originated with Seth Lewelling, of Oregon.

THE CARMAN PEACH, which is of the North China type, is of Texas origin. It is of most delicious flavor and of large size, and is said to succeed well in the Northern peach section.



FIG. 2535. AFTER TREES WERE PLANTED.

CANADIAN PEARS IN THE BRITISH MARKET

MR. W. H. COARD, Dept. of Agriculture, Ottawa, writes as follows: From the reports of the Government agents at Glasgow (Scotland) it would appear that our Canadian pears are at last receiving that appreciation which they deserve. The earlier shipment of Clapp's Favorites and Bartletts were not altogether successful; indeed, it can be taken for granted that Clapp's Favorite cannot be successfully shipped and should not be planted as an export pear. The Bartlett, under favorable conditions, does better, but cannot be depended upon, nor is the market likely to be so good at this season of the year; but our later shipment of Duchess, Sheldon, Anjous, and even Kieffer, have been quite successful. None of the varieties, however, are likely to equal either in profit to the grower or satisfaction to the buyer the Duchess. This pear combines in a rare degree excellent shipping qualities and good table characteristics, and the reports, especially from Glasgow, this year have been most encouraging.

Mr. John Brown, Dominion Government agent at Glasgow, has reported a dealer as stating that "after keeping the Duchess for fully ten days he found this pear to ripen nicely, adding, "I am well pleased with the way these pears have turned out, and am looking forward to getting some of the next shipments." Mr. Brown adds, "another party, who had fifty cases, kept them in an ordinary cellar for over a fortnight—from October 31st to November 15th—and was delighted with the way the fruit came up. He expressed the opinion that they were very much better than the late varieties of French pears that he had been getting."

One large Glasgow dealer recently purchased over 300 cases of Duchess pears at

from 90 to 96 cents, and after keeping them for a couple of weeks sold every case at from 120 to 132 cents each. These pears were beginning to color splendidly. Another dealer in the same city, after keeping twenty cases for ten days, in a warm banana house, disposed of them at from \$1.32 to \$1.44 each, and the buyers were well satisfied with the bargain. In fact, the entire shipment was a complete success, and should stimulate emulation amongst pear growers on this side.

One noticeable feature was the appearance of the pears in the cases, those wrapped separately in paper showing up to much better advantage than those packed without wrapper in the case. Mr. MacKinnon desires to express the opinion that the less "Excelsior" there is used in packing pears the better, a little at top, bottom and sides of the case being quite sufficient. "I am certain," the gentleman adds, "that the next arrival of Canadian pears in the old country will realise better prices than the last, because buyers were dubious about the fruit turning out all right."

Exporters will do well to remember that the large Duchess pears would have done better had they been more matured. After being kept a short time the prices realised for them increased by from 36 to 48 cents per case of 20 pounds. This has reference to the large Duchess only, the small Duchess not ripening up nearly so satisfactorily.

Taken as a whole, this report is very satisfactory, and, looking at the large market in the United Kingdom for fruit all the year round, future consignments from Canada, if they maintain the quality of that under notice, will meet a ready sale, and will fetch higher prices than those quoted here.

A BRITISH HORTICULTURIST

SOME ACCOUNT OF HIS RECENT VISIT,
AS GIVEN IN THE GARDENER'S MAGAZINE.

IT WAS with much pleasure that we received a call during the autumn from Mr. Joseph Cheal, of Crawley, Sussex, England. Though his stay was brief, it was yet long enough for him to make a somewhat careful survey of our methods of fruit culture, and take some photographs as mementos of his visit. Being a member of the Royal Horticultural Society, he promised us an introduction to some of its most prominent members should we visit London, so so that we might gather some interesting items for our readers.

In a paper, which he entitles "Rambles in the States and Canada," we find the following references to our country :

"As I wished to spend as much time as possible in Canada, I took the steamboat up the Hudson River, and travelled as far as Albany, and had a most lovely sail through picturesque and historical country. Passing on by rail from here to the Falls of Niagara, a day was spent there with some English friends whom I accidentally met, and the journey was continued in company with them by steamer across Lake Ontario to Toronto. Here I stayed amongst friends for a week.

"Several days were spent in visiting the principal fruit district of Ontario. This is a strip of land about a mile wide, extending for over twenty miles round the shores of the lake, backed up and sheltered by the high cliff behind. I was surprised to see the thousands of acres of flourishing orchards and vineyards of this district, peaches growing in the same way as our apples, and grapes trained on wires, and to find that these orchards are most carefully cultivated, and kept remarkably clear from

weeds and blights. A Government Inspector of Fruit accompanied me through these farms, and from him I gained much information, and I had the pleasure of meeting Mr. Orr, then president of the Fruit Growers' Association, and a keen and successful cultivator. Another enthusiastic grower and experimenter in the same district is Mr. L. Woolverton, M. A., who is the editor of the "Horticultural Journal" of Canada, and is also preparing what will evidently be a standard work on fruits.

"An extensive fruit nursery conducted by Mr. E. D. Smith was visited, and also a fruit collecting depot, where large quantities of fruit grown in the district are collected, graded, packed and forwarded to various markets. A large refrigerating chamber is provided for soft, perishable kinds.

"I then passed on to Ottawa, a beautiful and flourishing city. An introduction to Professor Robertson, the Commissioner for Agriculture, led to an interesting conversation about their experimental work, and I spent a most profitable day with Dr. Saunders, the able director of the experimental farms and gardens of the Dominion. This experimental work is most carefully carried out, and fully reported on, and the reports must be of great value to both old and new settlers.

"As I am much interested in the different systems of packing, storing and freighting of fruit, an introduction to one of the directors of the Canadian Pacific Railway, Sir Sanford Fleming, led to an interesting talk with him in travelling from Ottawa to Montreal. I gained from him much about the progress and prospects of the Dominion. He said that immigration had been larger this

season than any year previously, and that from the States they had had an influx of 24,000, and that their company had sold one million acres of land.

I had thought the long, cold winters almost an insuperable barrier to successful cultivation, but the Canadians assure me it is not so bad as we imagine, and that the snow on land and ice on the lakes and rivers opens up roads for hauling which are impassable in summer, and though the frosts are very severe, the wood of the trees is so well ripened that it escapes uninjured ; and the

air is so dry that it is not unpleasant to human beings.

The return journey was made from Montreal by the Allan line, and the steam down the St. Lawrence, past Quebec, is a very pleasant one, and somewhat exciting in shooting the Lachine Rapids above Montreal. We could not take the northern route, as the straits were blocked with icebergs, and in passing out to the south of Newfoundland we saw the floe ice breaking up on the rocky coast."

BEN DAVIS STILL ON TRIAL.

POOOR old Ben ! We fear his days are numbered as heading the list of most profitable commercial apples. He has had very enthusiastic defenders, but their defence has been largely based upon his good looks, and his critics are probing beneath the surface and say he lacks in intrinsic merit, and that he cannot stand the test of time. And now that his family has become so numerous, it is evident they are held as very common sort of folks.

In Green's Fruit Grower, for example, we find J. L. Burton asking :

"Shall we go on setting the Ben Davis apple as we have been doing here in the Western and Central States for many years past? The buyers are beginning to complain of too many of this old favorite moneymaker, and we are in doubt of the proper thing to do about planting the trees."

And Mr. H. E. VanDeman replies :

"There is no doubt that the millions of bushels of Ben Davis apples grown in the Mississippi valley, and farther westward, have made a great impression upon the markets of this country and Europe. It is the greatest of all our apples for business purposes, but not so much can be said of it in point of real value by the consumers. They want something better to eat and are demanding it. They are willing to pay for it, too.

"When I was in the states of Oregon and Washington two years ago I found a rising sentiment against 'Old Ben,' not only among the people who ate them but on the part of the dealers. They would scarcely take a big lot of this variety unless there were some Jonathan, Newtown, Rome Beauty or other good kinds to go with them. The good ones had to help bad ones. The same state of things now exists in the Central states. There is a fair apple crop in Missouri, Kansas, Illinois and that whole region, and in the big markets, such as St. Louis, there is an over-supply of Ben Davis apples. They bring little more than half the price that Winesap, Jonathan, Huntsman and other varieties of good quality do.

"My belief is, that those who are setting orchards will do well to take warning from these practical pointers from the business world and plant less of Ben Davis—and the same is true of Gano, which latter is no better in quality—and plant more of the really good apples. There will be more money in them in time to come, although for late keeping and the rough-and-tumble of the market 'Old Ben' will long hold a prominent position."

And in Coleman's Rural World, Mr. P. M. Kiely, of St. Louis writes :

"The publication in your journal a few weeks ago on my letter on the Ben Davis apple has brought to the front a number of defenders of old Ben. Strangely enough the parties coming to the rescue of this declining apple are those having large Ben Davis orchards—many of them planted years ago when this variety had more claims to recognition than it has now, or ever will have again. It is natural for a man to set a high valuation on his property and of course such people frown at any statement that reflects on their judgment or orchards. An apple dealer in Kansas City who is loaded to the guards with Ben Davis makes a hard fight for it in a communication to several trade journals patronized by dealers. The gentlemen declares he has letters from many states calling for Ben Davis but he neglected to add that it was useless for them to ask for any other variety and that they were looking for the low figures likely to arise where the Ben Davis were so plenty and all other varieties so exceedingly scarce.

"At the late meeting in this city of the National Apple Growers' Association I met a large number of men whose orchards unfortunately were composed largely of Ben Davis. Most of them admitted to me that

if they were planting again they would raise more varieties that could be acceptable in every market and worthy of the patronage of all—something that would command good prices regardless of how low Ben Davis figures were. Other growers thought I wanted them to root out all their Ben Davis orchards—an idea I never entertained. A number of these gentlemen submitted what they regarded a knock out argument in 'What will you give us instead—what will take its place?' Now there is no necessity for seeking or presenting any one variety but as I stated in my former article, several and not one variety should take its place. W. T. Flourney of Marionville, Mo., one of the most successful fruit growers in the state and who owned too many Ben Davis trees to condemn them, acknowledged that the article would doubtless change many existing ideas and was especially valuable to those contemplating setting out new orchards. In fact nearly all submitted there was enough already planted and it was time to call a halt on the Ben Davis, because if another tree is not planted in the next twenty years, the western markets will remain deluged with it during all that time, because hundreds—I might say thousands of orchards are composed mainly of young Ben Davis trees."

CHIEF MACKINNON ON THE BEN DAVIS APPLE IN GREAT BRITAIN.

MR. W. A. MACKINNON, Chief of the Fruit Division of the Dominion Department of Agriculture, writing from England with reference to the Ben Davis apple, states that the enormous surplus in the western and south-western States is more than likely to lead to the increased export of the Ben Davis, especially in view of the fact that a large area of newly planted trees will soon be contributing to the tide, which, according to Mr. Keely, is already backing up.

"I am no enemy of the Ben Davis," writes Mr. MacKinnon, "but their quality is beginning to be better, or 'worse', known here in England, and our own growers must be on the alert and stop planting, or begin to graft as soon as the situation demands it. If our neighbors to the south are trapped that is the time for us to shoot ahead with large consignments of high class apples in sound condition."

TILLAGE FOR THE ORCHARD

II.—PREPARING ORCHARD LAND TO RETAIN PRECIPITATION OF THE FALL AND WINTER.

BY

PROF. J. B. REYNOLDS,

OF O. A. C., GUELPH, ONT.

THE first preparation of orchard land for the retention of moisture should be done before the orchard is planted. Good underdrainage is the prime essential. Without this, subsequent efforts at good tillage will be more expensive and less effective. Good underdrainage prevents destructive surface washing, and increases the water content of the subsoil. If there is good natural underdrainage, artificial drainage is not necessary; but it must be seen to, before the trees are planted, that good drainage is provided.

A second step in the preparation of the land previous to planting, is deep cultivation. By this, I do not mean deep plowing, necessarily, although I see no objection to deep plowing for the purpose. At any rate, the loosening of the soil to as great a depth as possible—however it is to be accomplished—is the operation required. This operation, in common with drainage, produces permanently good results. It allows more water to enter and be retained by the soil. But especially, it enables and encourages the tree roots to strike deep into the soil, into a region where they are safer from the extreme frosts of winter or the extreme droughts of summer. The roots that run along just beneath the surface of the soil draw their moisture more largely from the chance showers of summer; while those that penetrate more deeply draw steadily supplies from below, and are not dependent upon the occasional and uncertain supplies from above.

With regard to subsequent operations,

there are three methods in vogue for treating orchards, which will be discussed in turn in their relation to the question under consideration, namely, retention of moisture. The three methods are: sod, clean cultivation and cover crops.

SOD IN ORCHARDS.—This article is not to be taken as, on the whole, commending sods in orchards. Here, the object is to point out the effect of sod in retaining moisture in the fall and winter. The covering formed by surface roots and the dead grass helps to prevent surface washing. Also, the grass roots penetrating the subsoil help to keep the ground pervious, and therefore increase the amount of water taken into the soil. In the third place, grass encourages the presence of earth worms, which burrow into the ground, and have a very beneficial effect in keeping clay orchards porous and mellow. Thus, directly and indirectly, grass has a good effect in helping the soil to retain moisture.

If, however, the grass is eaten bare and the ground trodden hard by animals pasturing in the orchard, these beneficial effects will not follow.

CLEAN CULTIVATION.—By this method no crops of any kind but trees are allowed to grow in the orchard. Weeds and grass are kept down by continuous cultivation during the spring and summer. For fall preparation, the proper treatment of the bare orchard is to turn the ground up loose and ridgy, to catch and hold the precipitation, and to prevent surface washing.

This method of continuing clean cultiva-

tion throughout the year is open to many objections. The bare ground offers to the tree-roots little protection from the severe winter frosts. There is danger, with the less hardy varieties of fruit trees, of winter-killing. With bare cultivation, the soil is very likely to become depleted of humus, a most necessary constituent for conserving moisture and good tilth. Also, with this method of cultivation the land is subject to surface washing and leaching of plant food by the heavy rains of fall, winter and early spring. On the whole, therefore, continuous clean cultivation is not to be recommended, either as a general expedient or as an aid to storing up moisture in the soil during the inactive season.

COVER CROPS.—By 'cover crop' is meant a crop sown late in the summer, allowed to stand as a cover for the ground during the winter, and plowed down early next spring. The cover crop protects the roots of trees in winter. It prevents washing, and during

rains and thaws holds the water at the ground surface long enough for the water to soak into the ground. The roots of the cover crop penetrate the subsoil to a greater or a less depth, according to the variety of crop, and generally have a beneficial effect on the conditions of the subsoil. The growing crop "fixes" the soluble plant-food in the soil, and instead of allowing this food to leach away, the cover crop absorbs it in the fall and returns it to the soil the next summer, after being plowed under for green manure. Lastly, the annual addition of green manure to the soil enriches the soil greatly and improves its tilth and water-holding power by the conversion of green manure to humus. It may be seen, therefore, that the cover crop is favorable for general purposes as well as for the special purpose which forms the subject of this paper.

The next paper of this series will deal with cultivation during spring and summer.

ONTARIO FRUIT IN WINNIPEG

CULLS GOING FORWARD—A BAD IMPRESSION GIVEN.

I NOTICED in last week's "Grocer" what Mr. A. McNeil, our chief in the fruit inspection division, has to say to the Ontario fruit grower. Situated as I am here, I have an opportunity to see something of both sides, and really, Mr. Editor, it is awful. If I am prejudiced at all, it is in favor of Ontario. Ontario is my old home. I have been up and down its roads and lanes, in and out its ways and by-ways; I have plucked its fruits and gathered its flowers, and really, it gives me pain when I see some of the packages that come up here marked "*Choice Ontario Apples.*"

It is no use mincing matters. If you have space to spare, please give the follow-

ing samples of what is not at all uncommon in my experiences the past season:

One firm that claims to be the largest growers of a certain variety of apples and pride themselves on their reputation, sent a carload of apples here. Now mark—their own growing and packing. Out of one of their barrels I took some samples and sent to the Department at Ottawa, which issued the following statement regarding them: "20 of these apples weigh only 28 oz." The report then went on to speak of the shamefulness of such practices. Another very large firm sent a car of apples here, two barrels of which I picked over, and this is the result: 1st barrel, 74 good, 54

culls ; 2nd barrel, 76 good, 53 culls ; 15% of inferior is the limit, even if graded No. 2. They were prosecuted and fined, two other cases being found against them in another city.

One very large shipper, grower and an altogether prominent man in horticultural circles, has been sending considerable quantities of apples and other fruit to this country last season. I happened to catch a car of his apples at Brandon, but had only an hour in which to hunt up the car, make the inspection, and catch my train. Fortunately the car was at the platform and I got out six barrels. Two of them were Jenettings, and not worth forty cents a barrel. I have seen peaches out of the baskets stamped with this man's name, and they were not worth a shilling a bushel. They were about the size of walnuts, and every bit as rough.

But the funniest and yet perhaps the most pathetic thing about the whole business from a moral point of view is this. A. R. C. being (as I am told), a contributor in the making up of a carload, the apples he himself furnishes being liable for two different reasons to subject him to prosecution, while many others of the lot from other sources are so bad that some of them would not bring the price of freight charges—this A.

R. C. writes the unfortunate receiver of the apples to pay up or be sued.

Mr. Editor, these are not Arabian Night or fairy stories, but downright sober, solemn truths ; truths that I might vouch for in every particular, and are but a fine cut of many. It is no use to use bad language, indeed one must not for cold type, but seriously, what are the Ontario people going to do about it? Supposing British Columbia had no apples to send to us, is there not a higher motive and a better reason why this should not be continued? Scaring a man into packing his apples right is something like scaring a man into religion because he is afraid of Hades, and will only last while you keep him scared, and I have it on good authority that a large proportion of that class backslide.

I trust the motive which inspires this letter will not be misunderstood. I beg to assure your readers that it is purely a case of "Nothing extenuate nor ought set down in malice." As I have written to another periodical in another letter I know something of the difficulties that had to be met this year.

Hoping I have not trespassed on too much of your space, I remain, yours truly,

J. J. PHILP,
Dominion Fruit Inspector.

ORIGIN OF FAMOUS APPLES.

AT THE recent Shaw banquet in St. Louis, Albert Blair, responding to a toast said :

I am glad that the first Congress of American Apple Growers has been held in this city, in the state of Missouri. We owe much to other states for their achievements in apple culture. Massachusetts gave us the Baldwin, the apple so much prized by our friends in the east ; New York gave us

the Northern Spy and the Newton Pippin, the latter said to be the king of apples ; New Jersey gave us the Belleflower and the Maiden Blush ; Virginia, the Albermarle Pippin and Grimes' Golden ; Kentucky, the Ben Davis, unequalled for profit ; Missouri has produced the Missouri Pippin and the Huntsmen's Favorite, and is herself first in rank as the land of the big red apples and of the big yielding orchards that produce them.

WORK ON FRUITS AT THE SCHOOL OF HORTICULTURE.

THE students at the School of Horticulture, Wolfville, have been taking up a study of varieties of pears adapted to Nova Scotia. The class was divided into committees, and to these committees were referred all of our principal varieties of pears with instructions to secure all possible information regarding them from those who have grown them here and from books and periodicals. The points investigated covered such questions as the habit of growth of tree; whether it grows best as a dwarf or a standard; age of coming into bearing; is it an abundant bearer or not; is it a profitable pear to grow for market; what are its failings? Local authorities such as Mr. R. W. Starr, Mr. A. H. Johnson and others were consulted and their testimony was given first place as showing the value of the

different varieties. Then Downing, Warden, Thomas and other writers were consulted and lastly the bound volumes of the Canadian Horticulturist, Country Gentleman and other periodicals in the school library were searched for information on the various sorts. At the appointed meeting of the class the committees reported on the different varieties, and each student took notes for future reference. The same plan is now being followed with our principal apples. Specimens of all of them have been examined in class, and each student has described them and tested them for himself. Now they are referred to the committees, who will report later the judgment of our growers on the strong points and the failings of all our standard apples, together with any new and promising candidates for public favor.

W. H. DEMPSEY, Trenton, writes:—The Niagara grape has been fruiting here for some years, and is considered a success in this district. It ripens well, and takes well in the market; in fact it is about the only white grape grown. The vine will winter on the trellis about nine years out of ten here. It is inclined to set too much fruit to ripen well some years.

ELLWANGER & BARRY, Rochester, N. Y., are introducing the Gans pear, of Ohio origin. It is declared to be a valuable addition to the list of early pears, in season between the Tyson and Bartlett.

PRUNING KIEFFER PEAR TREES.—One of Delaware's prominent fruit growers, J. J. Rosa, says that he cut his six-year-old Kieffer pear trees too much. As an experiment,

he left one tree to compare with those he had pruned. Last season from the unpruned tree he got eleven baskets of choice fruit, while none of the others bore more than four or five baskets. He believes he lost at least 3,000 baskets of pears by too severe pruning in this orchard, and does not advise severe cutting of young Kieffers.

THE MACDONALD APPLE.—A sample of this new apple was received on the 24th of January, 1903, from Luke Bros. Co., Montreal. In appearance the sample strongly resembled a very fine sample of Ben Davis, but the quality is much superior. If the tree is healthy and productive, we would expect this apple to prove one of the best commercial apples for Quebec, that is judging from this one sample. It is said to be a native of the Province of Quebec.



HYDRANGEA PANICULATA GRANDIFLORA

AMONG the plants to be sent out among the readers of this journal, next spring by the Secretary, Mr. G. Creelman, is this hardy hydrangea, which deserves a place on every lawn in Ontario. It has now been fully tested, and has proved hardy in the fruit districts of our province. At Maplehurst we have had a bush in flowering for several seasons, and Mr. Jas. Goldie, of Guelph, states that it has stood a winter temperature there of 40 degrees below zero, and has come out perfectly unharmed. This is very remarkable because the other varieties of *Hydrangea*, such as *Thos. Hogg*, *Otaksa*, *Hortensia*, etc., though most beautiful in flower are too tender for outdoor planting in Canada; even the wild *Hydrangea*, (*H. arborescens*) is only found in Pennsylvania and southward.

Our engraving shows one of its immense panicles of bloom, which is made up of hundreds of florets, which continue to grow and develop for six weeks or more, changing gradually from ivory white to pinkish white. The late flowers dry up, and take on a rich brown color, when they are desirable for winter bouquets.

The *Hydrangea* is very susceptible to the influence of drouth, and in dry seasons, especially if in light sandy soil, it should be well mulched, and occasionally thoroughly drenched with water. The great point in its culture is to keep up a good vigorous growth, which will usually be succeeded by great masses of bloom in the autumn. In dry seasons our hydrangeas suffer most



FIG. 2536. *HYDRANGEA PANICULATA GRANDIFLORA*.

severely from lack of such treatment as we have described, the leaves drooping badly, and the flower clusters failing to reach their full development.

For a conspicuous place upon the lawn, either as a single specimen, or in a group, it is one of the most desirable of all shrubs. Its time of flowering is in August or September when there are very few other shrubs in bloom, and then there is nothing that can in any way compare with it.

Mr. A. H. Ewing, of Woodstock, Secretary of the Canadian Horticultural Association, speaking of *Hydrangea paniculata grandiflora* says: "No shrub pays better for good treatment and good feeding than this. Young plants should be planted in the spring, in good rich soil that has had lots of well decayed manure dug in, and they should be kept well watered during dry weather; when in full growth they may have liberal doses of liquid manure. With this treatment they are sure to have large panicles of

flower towards the end of the summer. They should be well cut back every year, before the buds begin to swell, leaving only two or three strong eyes to each shoot, except, perhaps, in order to shape the plant, when more may be left, but the less eyes left the stronger will be the growth. It is a most beautiful shrub, and will well repay all the attention bestowed on it. The flowers last a long time—well into October; it should be in every garden. Here is a description of a round bed of them at Elizabeth, N.J., taken from the *American Florist*:—

"The bed was 25 feet in diameter, and contained thirty plants, the centre plants reaching to a height of eight feet. The plants will be seven years old next spring. They were in bloom August 1st, and made a handsome show for two months. When at their best there were two or three thousand panicles of bloom, the largest measuring fourteen inches in length and ten inches in diameter at the base."

PLANT FOOD

To induce free blooming and also to economize in space, small pots are more desirable than large ones. When the roots become somewhat pot-bound, the plant grows more slowly, and turns its attention to blooming; but very likely it has exhausted nearly all the available plant food contained in the soil, in making its growth, so if we expect it to give us a generous supply of blossoms we must supply needed food at regular intervals. There are a number of "Plant Foods" on the market, and provided one lives near a seed house, perhaps the best way is to buy the prepared food, and use it as directed on the package. The following mixture can be put up at any drugstore, and used as advised will give satisfaction:

Three-quarter pounds Sodium Nitrate,
one-quarter pound Sodium Phosphate (dry),
one-half pound Potassium Sulphate.

Pulverize the materials and mix them thoroughly (dry). Dissolve one rounding tablespoonful in one gallon of hot water. Let it cool before using; pour the liquid on the soil. One-half teacupful is sufficient for a six-inch pot. Use once in two weeks.

A good plan is to water plants by standing the pots in water hot enough to steam, leaving them in until the top of the soil shows moisture. The warm water at the roots, and steam on the leaves and branches have a very beneficial effect.

FEBRUARY NOTES

FEBRUARY NOTES—NOVELTIES—CARNATIONS—FUCHSIAS—CELLAR PLANTS—EARLY SEED SOWING—GIVING AIR—PROTECTING WINDOW PLANTS.

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH.

FEBRUARY may be fairly termed "catalogue" month, as these useful advance heralds of busy spring time usually make their appearance during this month.

In making your selection of seeds and plants do not discard well tested varieties that have proved useful and suitable, for novelties that often turn out to be miserable frauds or failures. Place the "novelties" down on your list of seeds or plants as "extras," your disappointments will then be felt less keenly, and your successes be an additional pleasure if some new or novel plant or flower of real merit is added to your collection.

Order your seeds and plants early, and avoid the early spring rush, and consequent delay.

WINDOW PLANTS.

CARNATIONS.—Although these are not considered to be really good window plants, yet one sometimes sees a nice specimen plant in a window where the temperature of the room is not too high, and the atmosphere consequently not as dry as where a high temperature prevails. Carnations like a moist atmosphere and a moderate temperature. A temperature of 45° at night and 60° in the day time suits them admirably. Red Spider is the bane of the Carnation amongst insect pests, and is generally the cause of failure with these sweet-scented favorites. Syringing the foliage, or dipping the growth of the plant in a pail of water on

fine sunny days is the best preventive or remedy for these almost imperceptible but destructive enemies to successful carnation culture, both in the window and greenhouse.

When the growth of carnations begin to assume an unnatural, whitish appearance, you may be pretty well assured that these pests have started out on their work of



FIG. 2537. CARNATION.

destruction. Commence at once with the syringing and dipping process at least two or three times a week. Carnation plants like to be kept moist at the roots, but do not like to be soddened with water all the time. Too much water at the roots often injures them and produces an unhealthy appearance of the growth. By examining the underneath side of the leaves closely, it can soon be ascertained if the spider has commenced its work, or if the plant has been getting too much water at the roots, making it look sickly.

To propagate Carnations, pull off a few of the young shoots that are produced about half way up the flower stem and stick them in around the pot the plant is growing in. They will often root more readily here than in sand. Remember to pull the short growth off, and not use the knife to it at all. The shoots mentioned for propagating are usually called "pipings," to distinguish them from ordinary cuttings. In three or four weeks they will have taken root and be ready to pot off into small pots.

FUCHSIAS.—Plants of these that have been resting during winter should soon be started into growth. Prune the tips of the young wood of last year's growth back a little, so as to make a nice, shapely plant. Give the plants more water than they have had whilst resting, and place them in a warmer position. As soon as the small leaves begin to appear, shake the plants out fairly well from the soil they are in, removing, as a rule, about half of the soil. Repot into the same sized pot into soil composed of two parts of rich, light loam and one part each of sand and leaf soil, well mixed together. Give the plants plenty of drainage at the bottom of the pots; broken pots are best for this purpose. Water the plants well once at the roots, then withhold water until the soil begins to show signs of dryness. Syringe the top growth of the plants daily. This will help the plants to break

into growth strongly, and also keep down red spider, the latter being the worst insect pest the fuchsia has, as is often seen by the plant dropping its leaves, sometimes before it commences to produce its beautiful drooping clusters of flowers. Syringe fuchsias often and thoroughly, wetting every leaf, especially the underneath side.

CELLAR PLANTS.—Oleanders, Hydrangeas, Lemon-scented Verbenas, etc., that are often wintered successfully in basements and cellars, should be looked over occasionally to see if they are in good condition. Possibly some may require a little water, as the soil around these dormant plants must not be allowed to become dust dry. If the plants are already showing signs of growth from having been kept in a too moist or warm place, it is best to bring them at once into partial light and repot them if necessary. Plants that have once started into growth and are then put back into a dark place and allowed to dry again at the roots, are injured materially, if not killed, by the latter treatment. Better to introduce them gradually into full light and sunshine in the window and grow them on, than attempt to check them again after they have once started into growth. This second return to a dormant state generally proves fatal to almost all plant growth.

EARLY SEED SOWING.—Seeds of Petunias, Verbenas, Alyssum and Lobelia may be sown in pots in the window about the end of the month or early in March, so as to secure large plants for window boxes or hanging baskets. Later sowings may be made for planting in the beds or borders. Golden Feather (*Pyrethrum*), so useful as an edging plant, should be sown early, as it is very slow growing.

GIVING AIR TO PLANTS.—With the increasing heat of the sun, window plants will be benefitted by being given a little fresh air. This must, however be very carefully done, so that the outside air does not strike

directly on the plants, unless the weather is more balmy and spring like than is usual in February or early March. By opening an outside window or door in an adjoining hall or room on a fine and moderately warm, sunny day for only a few minutes perhaps, enough pure air will be admitted to be of great benefit to the plants. This can be done every day if the weather permits. Or the top sash of the window may perhaps be lowered an inch or two, to allow a current of fresh air to pass over the plants without striking directly on them. Never give air from the bottom of the window, even on sunny days, unless the temperature outside in the shade is about 50°. Even then a strong breeze directly on the plants may injure the most tender ones unless great care is exercised.

INSECT PESTS.—These will be sure to increase rapidly as the heat of the sun increases. Tobacco smoke or tobacco water, and constant syringing and sprinkling the plants with cold water once or twice a week on fine sunny days, are the best preventatives and remedies for insect pests, more especially the aphid or green fly, the most common spring and summer pest to plant life.

PROTECTING WINDOW PLANTS.—Lifting the plants down into a warm corner of the room, away from the direct current of air from under the door, will often save a collection of plants from freezing on extra cold nights. A sheet or two of newspaper will also give extra protection if placed around and over them. Newspapers or sheets of brown paper placed between the window and the plant so that the edges of the papers overlap each other as well as the edge of the window, is a great security to window plants, in addition to a thick, close window blind. Late winter and early spring is when window plants are in the greatest danger from frost, as the warmer days induces carelessness in regard to fires, the result often being the ruin of a fine collection of plants

after a winter's previous close care and attention.

Black Spot on Roses.

SIR,—I am greatly troubled with black spot on my roses, H. P's. It appears soon after the bloom is over and defoliates the canes entirely before the summer is past, thus injuring the new growth. What remedy do you advise? A. B. O.

Bad drainage at the roots, or too much animal manure applied to the soil, or too much water will induce the disease known as "black spot" or "rose leaf spot." If the soil is of a clayey nature, try a good dressing of wood ashes in the spring. Spread the ashes over the soil so as to pretty well cover it, then fork the ashes just under the surface of the soil. Fungicides that will check the black spot are often as dangerous to the plant as the disease itself. The disease seldom does much injury where the soil is well drained and proper fertilizers used. About one-third bone meal may be added to the ashes mentioned if a fertilizer is needed. Picking off the diseased leaves as soon as they appear is also a preventive of the disease spreading.

Carnations.

SIR,—Would Mr. Hunt be so kind as to tell me why so many seedling carnations of the Marguerite, Dwarf Vienna and other varieties fail to produce flowers? They grow large tufts of leaves but no flowers. It is so common with me that he must have observed it. The habit of growth of these flowerless plants is quite different from those which bloom. A. B. O.

I should advise trying a fresh strain of seed of the Marguerite Carnation. These carnations are very susceptible to hybridization, and it often happens that many of the plants partake more of the remontant or perpetual flowering kinds, the latter taking a much longer time than the Marguerites to produce their flowers from seedling plants.

Geraniums.

SIR,—Can the soil be too rich for geraniums? My beds are made very rich. Whatever the cause the result has been that the plants produce no flowers, and the leaves drop off and all are more

or less affected with a round spot as if stung by the blister beetle.
A. B. O.

An excessively rich soil is not good for geraniums as it induces a soft sappy growth and few flowers. Take out a portion of the top soil of the bed, and substitute some

light loamy soil that has not been enriched, mix the two soils well together when forking the bed over. Planting the same varieties year after year will sometimes account for plants not flowering. If this is the case, plant some other varieties.

LARGE FLOWERED MOCK ORANGE

A WELL-KNOWN shrub that is almost indispensable in any collection, is the Mock Orange or Sweet Syringa. In 1899 we showed our readers a spray from a bush at Maplehurst, which we reproduce. The large flowered variety is so superior to the common one grown in Canadian gardens, that when this plant first came into bloom it seemed almost a new species, it is so much larger and more showy. Dr. Saunders wrote of this variety in one of his reports as follows: "There are several species belonging to this genus which are beautiful and interesting when in bloom. Grandiflora is one of the best of them. The flowers are large, pure white and sweet scented, and are produced in great abundance during the month of June. The bush is a vigorous grower, and if not interfered with will, under favorable conditions, reach the height of eight or ten feet. Since the flowers are produced only on the wood of the previous year, this may be cut away when the flowering period is over, which will give more room to the new shoots and they will become better ripened. In this way these shrubs may be kept smaller and made to produce flowers in greater protusion. The syringas will, however, do very well without any pruning beyond the occasional removal of dead wood and flower freely. The large flowered species is fairly hardy and usually comes through the winter without much injury, especially when partially protected by hardy trees and shrubs, but in seasons of



FIG. 2538. SYRINGA.

unusual severity the shoots are often partly winter killed.

SPIREA VAN HOUTTEI

OUR engraving shows a bush of *Spirea van Houttei* in full bloom at Maplehurst, early in the month of June. Of the large and attractive group of *Spireas*, some species of which are found natives of nearly every country and climate, no one is more beautiful than this, for it is a wonderfully free bloomer, and its charming white flowers make it a splendid bush to plant along with other shrubs, such as *Weigelia*, *Syringa*, *Tartarian Honeysuckle* or *Purple Fringe*. It is



FIG. 2539. SPIREA VAN HOUTTEI.

quite hardy in Southwestern Ontario, and does fairly well even as far north as Ottawa.

The bush grows to a height of about six feet. It is one of our premium plants this spring.

HOUSE PLANTS IN WINTER

PALMS ARE AMONG THE MOST
BEAUTIFUL AND SATISFACTORY.

THERE are many beautiful plants that with intelligent care can be made to thrive and do well in winter.

Among the most beautiful and satisfactory are palms. They are very strong and hardy, and with the observation of a few simple rules can be kept green and vigorous all winter. More palms are killed by overheating than by cold. They should have a temperature of between 50 and 60 degrees.

If it is not convenient to have any room in the house kept as cool as this, stand them in the corner furthest from the radiator, as close as possible to the light, but not in the glaring sun. The worst enemy of plants is dust. Owing to its smooth leaves, the palm can be readily kept free from this. Its leaves should be washed with a soft sponge and luke warm water.

As to watering, the great danger is that

the housewife will be too generous in this respect. It is difficult to give a definite rule. Generally speaking, the earth in the pot should be kept moist, not wet. If the room is kept at high temperature, the plant will require more water than in a cool place. But winter should be a time of rest for the plant, and therefore nourishment and water should be given sparingly.

Neither a palm, nor any other plant, should ever be put in a glazed pot. If an ornamental pot is desired the earthen pot should be set inside. A porous pot absorbs and evaporates the moisture, while in a glazed pot the earth grows sour and unfit for even very hardy plants. There should be a hole in the bottom of the pot, over which a stone, a bit of broken crockery, or something similar should be laid. A few lumps of common charcoal at the bottom of the pot will prevent the roots from rotting, and powdered charcoal mixed with the earth has the same effect. The chunks localize the effect, keeping the bottom from turning sour.

Having temperature and moisture right, the next enemy of the plant is parasites, such as fungi and insects. Many little insect pests affect the palm. Some of these are destroyed by washing the leaves with a sponge or a soft brush, using clean water only. Those that cannot be destroyed in this way, such as scales, can be quickly despatched by tobacco juice diluted with water. Any tobacco or cigar manufacturer will give you all the ribs of tobacco leaves you want. Put a handful of these in a quart of water and boil. Wash the leaves with this, and if you put in a little whale oil soap it will be all the more effective.

As to fertilizers, none should be used in winter, as it stimulates the plant into an unhealthy activity at a period when it should be resting. If the palm begins to droop and the normal bright green turns into a sickly yellow it is probably because it has been

kept too wet, or if the plant has been in the the pot two or three years the soil in which it grew has probably been exhausted. In this case repotting is the only effective remedy. Care should be taken, however, not to transfer to too large a pot. Most people think that the larger the pot the better for the plant. But this is a great mistake. If the pot is too large the plant has more moisture and nourishment than it can absorb, and the roots will rot. A pot an inch and a half larger in diameter than the old one will afford ample room. The second year a portion of the earth in the top of the pot, where it is free from roots, can be removed and fresh put in, but the plant should not go more than two years without repotting.

These rules for palms apply equally to all winter plants. You must adapt your plants to the condition of your rooms. Tell the florist what kind of heat and exposure you have, and he can tell what kind of plants will probably do best in your rooms. Some of the hardiest and most satisfactory varieties of palms are the *Kentia*, *Latania*, *Areca*, *Cocus*, *Corypha*, *Chamaerops*, *Dracaena*, and *Pandanus*.

The cactus has been sadly neglected as a house plant. There is no plant that responds more gratefully to a little kindness and intelligent care. Its odd shape will fully compensate for the little trouble the plant causes. Frost and too much moisture are fatal to the cactus family.

The greenhouse favorites, violets, roses and carnations, cannot be grown at home. While the rose will sometimes develop the buds upon it when purchased, it can rarely be induced to blossom again. The azalea, too, which when purchased, is loaded so thickly with blossoms, if kept a year with all care at home, will perhaps put out two or three straggling flowers. But there are plenty of fine house plants that are too little known.—*The Mail and Empire*.

THE CANTERBURY BELL

(*CAMPANULA MEDIUM*.)

BY

JAS. M. HALL,

HAMILTON.

THE genus *Campanula* is a very important one, and contains some three hundred species, some of which are annual, some biennial and some perennial.

The Canterbury Bell (*C. medium*) is a great favorite with me, and I have pleasure in sending you photograph of a bush in my garden, and also of a few of the single flowers. These show how appropriate the name *Campanula* is, for it is a Latin word for "little bell." I think no garden is complete without this species. It is a hardy biennial, and since it does not bloom until the second year after planting, it is necessary to sow seeds every year in order to keep up an annual display of flowers. This plant grows up the second year in pyramidal form, and



FIG. 2541. CANTERBURY BELLS.



FIG. 2540. *CAMPANULA MEDIUM* (*C. BELLS*).
GROWN BY MR. HALL, SUMMER OF 1902.

has many large bell-shaped flowers in beautiful shades of dark purple, mauve, blue, pink and white; they are also striped as blue and white, mauve and white, etc.

A lovely variety of this *Campanula* is the one known as "Cup and Saucer," the white waxy appearance of which is beyond description.

The *Companulas* succeed best in a very rich, well drained soil, and they should not be too much exposed to the sun. The plants should be protected in winter with leaves and coarse litter or straw.

They are fine for cut flowers, and the cutting encourages their continuous bloom; indeed if the seed vessels are removed a second crop of flowers may be had the same season.

THE CARE OF PLANTS IN THE WINDOW

IN winter, as at no other time, we appreciate the flowers in the window. They seem to suddenly take on a charm and beauty we have not seen in them before, and we feel that home would not be what it ought to be without them. And this is as it ought to be. Flowers should be considered one of the necessary things of life.

A window full of flowers in winter is as good as a course of lectures to him who keeps his eyes and heart open. They are all the time preaching little, silent, eloquent, sermon to us. They concentrate our attention on a bit of summer brightness, and we feel that if a fragment of the great whole can afford so much pleasure, we have but feebly appreciated the wealth of beauty and brightness God gives to us yearly.

Make friends with your plants. Don't be content with simply knowing their names and just as little about their requirements as will enable you to keep them alive. Be on intimate terms with them. That is the only way to enjoy them.

In order to grow plants well in the house they must have plenty of light. Unless this can be given they will be spindling and weak, and there will be few if any flowers, and these will be inferior.

The best exposure is a southern one ; the next best an eastern one. A south window is the one in which to grow Geraniums, Lantanas, Heliotropes, and all plants fond of much sunshine, while the eastern one is better for Begonias, Fuchsias, and such plants as care more for the sun in the early part of the day, that they do after its rays become more intense. A west window gives too much heat unless shaded considerably, but is better than no window at all, and if you have no other to give your plants, don't

go without them. A curtain of thin muslin will temper the heat greatly, and vines can be trained over the glass in such a way as to break the fierceness of the sun's rays. A north window is not suited to the needs of flowering plants, but some which are grown solely for foliage can be kept there. Ferns, Palms, Aspidistra, Ficus, and Lycopodiums, will do quite as well there as in a window exposed to the sun. English Ivy can be trained about it. Tradescantia in baskets can be hung up in it, and thus it can be made beautiful without flowers if you have a love for "green things growing."

One often sees weak, scraggly plants in the sitting room windows. They seem to have grown too rapidly to be healthy. Two things combine to bring this about ; lack of fresh air and too much heat.

If you want fine plants, you must give them plenty of air. They breathe, as you do, and without fresh air they pine and become diseased, the same as you would under similar conditions. Always have your window arranged in such a manner that it can be lowered at the top, thus letting a stream of pure air blow in over the plants. Opening doors from the hall, or some adjoining room into which air can be admitted from without, will let in a supply which your plants will fully appreciate. Never let a stream of cold air blow directly on them, however. Aim to have the cold air mix with the warm air of the room before it reaches them.

The air of the living-room is generally kept too warm and dry for plants. About seventy degrees during the day time and fifteen degrees less at night would suit such plants as one finds in ordinary collections. Aim to keep the temperature as even as pos-

sible. Too great heat forces a weak growth, and has a tendency to blast any buds that may form.

In a room where the air is warm and dry the red spider will do deadly work. In order to keep him at bay the plants must be given as much moisture as possible. Keep a vessel of water on the stove, to evaporate. Shower the plants daily. If the pots are used without saucers, the table on which they stand, or the shelves, can be covered with an inch of sand which can be kept in place by tacking cleats along the edge of the stand. The sand will take up and retain the water which runs through the pots, and thus a steady moisture will be given off from it, for there will be constant evaporation taking place. Keep the air of the room in which the plants are kept as moist as possible, if you want to grow strong, healthy plants.

Showering daily helps to keep the foliage clean, and unless the dust, which settles on the plants when sweeping the room, is cleared away, the pores of the leaves become clogged and the plant finds it difficult to breath, for the pores of the leaves are really the lungs of the plant.

In a moist atmosphere many plants can be grown which would die in a dry air, and all plants do so much better where there is plenty of moisture in suspension that the amateur who wants his plants to do their best will aim to supply it. It has often been observed that fine plants are frequently found growing in the kitchen, while those in the parlor are sickly. The explanation of this is : The kitchen air is moist because of the cooking, washing and other work of that kind going on there, while the parlor air has all the moisture extracted from it by intense stove and furnace heat which there is no moisture to modify.

Stir the soil in the pots at least once a

week. An old fork is a good tool to do this with. This allows the air to penetrate to the roots, and keeps weeds from getting a start. Keep all dead leaves picked off and remove fading flowers. It is a good plan to cover your plants with a thin sheet, or a newspaper, when sweeping. Another good plan is to remove them to the kitchen at least once in two weeks, and give them a thorough washing. This helps to keep down insects and prevents them from becoming incrustated with dust.

Provide yourself with one of the brass syringes or elastic plant sprinklers for sale by dealers in florists' goods. With one of these you can throw a strong stream or a spray of water over and among your plants, and apply it effectively, which you cannot do if you depend on a wisk-broom for a sprinkler. A "sprinkler" is not what you need, but something that has force enough to take the water in all directions and in such quantities with such volume as the case may require.

Turn your plants at least twice a week so that they will get the sun and light on all sides. This prevents their becoming drawn to one side, as they will be sure to do if not turned frequently. Do not neglect to do this if you want good-shaped specimens. Be sure to give all the light possible ; don't shut it out from the window by curtains. Let your plants furnish the beauty for the window. Some are afraid of letting in the sunshine upon their plants because it will fade the carpet. If you care more for your carpet than you do for your flowers, give them to someone who is willing to do the fair thing by them, and concentrate your energies on the protection of the precious carpet, but don't attempt to compromise matters between the two, for this will result in failure so far as the plants are concerned.—

Exchange.

THE LOCUST TREE.

AT Maplehurst we have a dozen fine old locust trees, the kind botanically known as *Robinia Pseudacacia*. They were planted over one hundred years ago by the first member of our family who purchased the old homestead, and they are such rapid growers that now they rival maples and elms of two or three times their age in the wood lot. They are interesting trees, and have some merit for ornament with their racemes of pea-like flowers in early spring and their delicately pinnate leaves. They grow to a lofty height and are not so dense in foliage as to hide distant views; yet as lawn trees they are not very popular, because they are inclined to sucker, they are late in foliage, and they make considerable litter both of flowers and leaves and broken boughs.

But as an investment, the growing of locust trees for fence posts on sandy soil would no doubt be a paying one, and we quote from the Vermont Experiment Station Bulletin a valuable extract on this subject:—

“Every farmer in New England ought to produce posts for his own use at least if not to sell. There are three common trees especially suited for posts—the Red Cedar (*juniper*), the White Cedar (*arbor vitæ*), and the common Locust (black or yellow locust). The last will make the quickest growth, is easily started, and best adapted to otherwise worthless soils. Good locust posts will usually be standing long after the man who sets them is gone.

“Believing that the growing of locusts on a fairly large scale for sale as posts ought to prove profitable, the Vermont Experiment station has recently been investigating the question and started some experimental plantations. Preliminary plantings of some nine varieties of trees have been made at intervals since 1897. The outcome is especially favorable in the case of the white pines and the locusts, and a considerable larger plantation of each of these was made in 1902. This trial is being made on the

dryest area of the level sand plain east of Burlington. Pitch pine is the only tree that makes a vigorous natural growth here, although the white pine succeeds fairly well when planted. The locust far outstrips all others, however. Of several thousand seedlings set last spring, when less than a foot high, ninety-two per cent. are now alive and three feet or more in height with leafy branching tops. Seedling trees near by in exactly similar soil have a trunk diameter of five inches and a height of sixteen feet at eleven years of age; others nineteen years old, growing in equally sandy but moister soil are averaging nine inches in diameter at the base, and a clean shaft of twenty-four or more feet, which is sufficient for three fence posts and some fire wood besides. Twenty years from seed will give a crop fit for posts on this last soil, and the coppice growth, following the cutting of the first crop, will ensure a second crop in even less time. The seedling trees cost only \$3.50 per thousand, and can probably be raised at a less expense. Allowing 1000 such trees per acre yielding three posts each once in twenty years, a handsome return is assured. The serious danger and source of uncertainty in locust culture is the borer. Fortunately its worst attacks are confined to the young trees, and if these survive then the danger is soon outgrown. It is said that the use of heavier foliated trees for one-third the plantation in mixtures with the locusts, will reduce this danger from borers. White pine is considered the best tree for this purpose in sandy soil. The reason for the especial success of the locust on barren soil is that as a member of the pea family it secures its nitrogen indirectly from the air. It thus gains its own supply of this element, and at the same time enriches the soil where it grows. This latter result is shown by the fact that grass around locust trees may appear even greener and more luxuriant than in the open field.”



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

Notes from the Horticultural Societies

LINDSAY.

The officers for the year were duly elected at the annual meeting. The secretary's report showed receipts of \$274.03, and an expenditure of \$213.39, leaving a balance on hand of \$60.64. During the year they put in circulation 94 copies of horticultural literature and 2500 bulbs; also 300 plants of different kinds were distributed among the members. This society is doing a good work, and more should help by becoming members.

PARIS.

The Directors beg leave to present their Fourth Annual Report for the year ending 31st December, 1902.

Our membership for the past year was 79, being an increase of 15 over the previous year.

In spite of very vigorous attempts made to arrange an excursion to the Ontario Agriculture College at Guelph, we were unable to succeed, the excuse being given that such excursions could only be permitted to farmers' institutes. As a result we

begin the new year's business with a balance on hand of only \$10.76 instead of \$57.47.

Our usual Flower Show was held on August 8th and 9th, and was an even greater success than in previous years in point of attendance and exhibits. The receipts at the door being \$14.56 and total expenses \$37.74.

In this regard we think it advisable for the Society to consider whether the Flower Show should be open to all or to members only, and whether admission fees should not in future be charged.

Nature study is a branch of modern education which is now receiving a good deal of attention, and in pursuance of that idea, your Directors at an expenditure of about \$15 took in charge the grounds of South Ward School, planted them with various Canadian shrubs and trees, had them all properly labelled, and handed them over to the Board of Education to remain for all time an object lesson to the young, and an incentive to our School Boards and Town Council to continue in the work of civic improvement.

While we will not have as much money to spend

in the coming year, we hope our successors will take some further steps to improve either the school grounds or the public parks and streets. Such a Society as this should take the lead in such work, and by its example encourage those outside the roll of our membership to beautify their own residences as well as the streets and parks of what is said to be the prettiest town in Ontario.

A large distribution of trees, plants, flowers and bulbs was made to our members at a cost of \$100.44, and on the whole satisfaction was expressed with the premiums. As a result of our efforts many new plants and flowers have been introduced into the homes and lawns of our town.

Your Directors wish to point out that although the objects of a Horticultural Society are to encourage a love of nature in regard to one branch of the vast number of subjects which come under the head "Nature Study," and which includes that which is most beautiful and good, and which has a more elevating and ennobling tendency than perhaps any other phase of natural science, yet, among in list of members we can find only one school teacher and only one clergyman, and a retired one at that, out of over a dozen teachers in town and a half dozen clergymen. Do we think too much of our Society or do they fail to appreciate a good thing when they see it?

Mr. Geo. Champion of Toronto, very kindly acted as judge at our Flower Show and delivered a very interesting and instructive address on the faults and mistakes in potting plants.

All of which is respectfully submitted,

(Sgd) JOHN ALLEN,

Paris, Jan. 14th, 1902.

President.

LONDON.

A very satisfactory annual meeting was held on Wednesday evening, Jan. 14th, the Rev. Dr. Bethune, President of the Society in the chair. The Officers and Board of Directors were unanimously re-elected. The financial statement showed a balance in hand of \$60.16. After an address by the President, in which he reviewed the work of the past year and suggested new matters that might be taken up during the coming season, the report of the Directors was read as follows:

The Directors of the London Horticultural Society beg to present their third annual report.

During the year 1902 they have held nine meetings for the transaction of the business of the Society, in addition to the annual meeting on the 8th of January.

Two lecturers, commissioned by the Provincial Association, addressed the pupils of the public schools on the 14th March, and in the evening a public meeting in the Collegiate Institute. The attendance at the latter was very satisfactory, and much interest in the subjects discussed was shown by the audience.

On the 25th of April a paper was read by request before the London Teachers' Association by Mr. Cammage, and addresses were delivered by Messrs. Fox and Balkwill on Horticultural Subjects. On June 15th the President addressed the Sunday School at the Chalmers' Presbyterian Church on the occasion of a distribution of flowers and plants to the pupils.

Three very successful flower shows were held during the summer months in the City Hall, which was kindly placed at the disposal of the Society by the Mayor and City Council.

The first show was held on the 7th and 8th of May, when a very fine exhibit was made of tulips, narcissus and other spring flowers. Mrs. Labatt kindly contributed an orange tree in fruit and several other specimen plants, and Mrs. Macfie a large number of cut flowers.

The second show was held on the 24th, 25th and 26th of June, the time being extended to a third day in consequence of the very wet weather which prevailed and greatly reduced the attendance. The exhibit, however, notwithstanding the cold, wet season, was very fine, the display of roses being especially striking. About forty of our members contributed flowers of many varieties, and to them is due the success of the exhibition.

The mid-summer show, the third of the season, took place on the 6th and 7th of August, and was considered to be the most beautiful and the richest exhibition which the Society has yet given. This was largely due to the magnificent display of hybrid gladiolus of the "Pan-American" strain contributed by Mr. H. H. Groff, of Simcoe, the master hybridist and famous grower of these magnificent flowers. He sent about a thousand spikes displaying every variety of color yet produced and great perfection of shape and size. Many of our members also exhibited Gladioli, which it would be difficult to surpass anywhere. Among these may be mentioned the grand array sent by Mr. Paine, and very fine collections by Mr. W. E. Saunders, Mr. C. J. Fox, Messrs. Gammage and Sons, Mr. E. J. Liddicoat, W. Gilbert and others; of other flowers there in perfection a splendid display was made by a large number of our members, the excellence and variety of which was most creditable to the exhibitors, and a cause of delight and wonder to the large number of visitors.

A collective display of autumn flowers was made by the members of the Society at the annual exhibition of the Western Fair during the week beginning Sept. 15th. This was not in competition for any prize, but was intended to show the public, and especially visitors from a distance, what could be done in the way of flower production at that late period of the year. The blooms were numerous and very tastefully arranged, and attracted great attention from the throng of visitors to the Horticultural Hall. The society was awarded a diploma by the directors of the Fair in recognition of the excellence of the display.

The directors again offered three prizes at the Western Fair for the best collection of cut flowers exhibited by members of the Society. This brought out a better competition than last year, and prizes were awarded to Mrs. Morgan and Mr. Wm. Moore.

During the year the members of the society received as premiums, in addition to the plant from the Fruit Growers Association, a bulb of *Lilium speciosum* and seeds of *Dolichos* and *Salpiglossis* in the spring, and in the autumn half a dozen *Hyacinth* bulbs. Mr. Gammage, with great generosity, also presented each member with four named varieties of *Chrysanthemums* in pots.

An invitation was sent to all our members to at-

tend the 39th annual meeting of the Entomological Society of Ontario, which was held here on the 29th and 30th of October. A fair number availed themselves of the opportunity of hearing the interesting and instructive addresses at the public meeting in the Normal School building.

The Directors have much pleasure in recording their high appreciation of the public spirit and generosity of Mr. Adam Beck, Mayor of the City, in offering \$100 for prizes in a garden competition. A very large number of entries were made and the results were very pleasing not only in the care and improvement of the premises of those competing, but also in the effect upon their neighbors who were influenced by the examples thus set and did much to keep their own grounds in good order.

The Directors feel that they may justly congratulate the Society on the good work it has accomplished in the City of London, during the three years of its existence. Testimony is borne on every hand to the noticeable improvement to be seen in all directions in the care of lawns and boulevards, and the cultivation of flowers and shrubs. We should all be encouraged by this success to do everything that lies in our power to promote a taste for beauty amongst our citizens of every grade, and to lead them to vie with one another in making the surroundings of their residences and places of work and business as attractive as possible.

All of which is respectively submitted,

R. W. RENNIE,
Sec'y-Treas.

C. J. BETHUNE,
President.

HAMILTON.

The annual meeting of the Hamilton Horticultural Society was held in the Museum of the Public Library, Jan. 14th, 1903, at 7.30 p.m.

The Secretary-Treasurer reported a balance on hand of about \$204.00. The Society began the year well, three open meetings having been held. In November an address by Mrs. Iza Gilchrist; in December, "Best Flowering Shrubs," by Mr. Roderick Campbell, of Niagara Falls, illustrated by numerous specimens of decorative winter plants; in January an address by Mr. J. O. McCulloch on "Popular Garden Flowers," illustrated by some seventy-five lantern slides made during the past summer.

Mr. A. Alexander, who has been President of this Society since its inception, has resigned the position and Mr. J. O. McCulloch has been elected in his place.

J. M. DICKSON, Secretary-Treasurer.

OTTAWA.

Ten years ago yesterday the Ottawa Horticultural Society was organized in the City Hall with a membership of about twenty-five. The annual meeting held last night showed how it had grown and become prosperous in these ten years, for the membership last year numbered 239, while the receipts were \$743.

Mr. R. B. Whyte, who has been President of the Society for the past three years, made a short statement of the work done during the past year

and how the Society had progressed. He gave a comparative statement of how in the past three years the interest had grown as follows:

	1890	1901	1902
Receipts	\$649	\$671	\$723
Disbursements	\$562	\$594	\$654
Number of Entries.....	772	735	725
Attendance	720	829	1023
Number of Members....	186	213	239

Mr. Whyte thanked the members for the honor they had done him in electing him to fill the position of President for three years, and assured the new President of his hearty support.

Mr. W. T. Macoun, in a short address, voiced the feelings of the members towards Mr. Whyte, whose untiring efforts during the past three years has made the Ottawa Society second to none in Canada.

It was decided to branch out and educate the school children of the city to take a greater interest in flowers, and to hold a show in 1904 at which school children should exhibit plants grown from bulbs given by the Society. It was decided also to hold a General Bulb Show open to members in this month.

WOODSTOCK.

The Horticultural Society met last night in the Council Chamber with a fair attendance. G. R. Pattullo presided. The President's and Secretary's reports were read, both showing a very satisfactory condition of affairs. Their former report showed a balance on hand of \$115.15. Their total receipts were \$364.61, made up of a balance from last year of \$116.28 receipts from the Legislative grant, subscriptions, flower show, etc. The disbursements amounted to \$249.46 in all. Among the items of expenditure were the cost of the flower show and distribution of plants to the public school children. The sum The sum of \$61.38 was expended in the latter worthy cause, which was found to be a most successful experiment.

Mr. Pattullo, who has held the office of President for the past two years, on retiring from that office in favor of R. W. Woodroffe, in recognition of his valuable services to the Society was unanimously elected Honorary President.

Mr. Pattullo, in addition to the suggestions made in his presidential address, outlined a scheme for a "suburban drive." He thought by systematic improvement upon some of the outlying streets, such as Vansittart avenue, planting of trees, draining, grading and other improvements, that gradually this desirable object might be gained.

Several members reminded the President of the large outlay such a course would entail.

Mr. Pattullo replied that the money could be raised between the property owners and the Council. Of course it would take some time to provide a suitable scheme. He wished merely to mention the matter as a suggestion.

Mr. Woodroffe deplored the present condition of Vansittart Avenue and Victoria Parks. They had been kept in a disgraceful condition last year. He proposed that a committee be appointed to in-

interview the Council regarding this matter. The matter will be dealt with by the new board.

Secretary J. S. Scarff gave the members some of his observations at the recent meeting of the Ontario Fruit Growers' Association at Walkerton. The meeting had been one of the most important ever held and Mr. Scarff was again appointed a member of the board.

The following was the President's annual address:

At the close of another year in the history of our Society it is satisfactory to report that some progress has been made. The work of this and kindred societies is usually done by comparatively few of the members who have a special love for it. Under these circumstances progress is generally slow, but in our own Society in recent years there is apparent an increasing and more general interest.

The Annual Flower Show of the year was on a larger scale, the exhibits were more numerous, the market sheds were better suited therefore and they lent themselves more easily to tasteful decoration with arrangement of the several exhibits. These features, together with excellent music provided, made the Flower Show the most successful, both in point of merit and attendance, and also to the afforded pleasure to visitors, that the Society has yet held.

The plan of holding cottage or garden meetings, begun the previous year, was continued during the summer. Two very pleasant, interesting and helpful meetings of the Society were thus held at the homes of T. H. Parker and William Grey, Esquires, two of the earliest and most prominent of Woodstock's horticulturists. At the latter, Mr. Grey contributed some interesting reminiscences of pioneer horticulture and horticulturists here. The Society are also indebted for a very pleasant afternoon spent at the greenhouses and surroundings of Doyle & Son's, where they saw a large, varied and fine bloom of chrysanthemums, geraniums and other annuals.

BEAUTIFYING OF SCHOOL GROUNDS.

ADDRESS, BEFORE THE WOODSTOCK HORTICULTURAL SOCIETY BY MR. G. R. PATTULLO, PRESIDENT.

The Society has enjoyed the privilege also of hearing several valuable papers contributed by members during the year, notably those of our lady friends, Mrs. Finkle, Mrs. Hoare and Mrs. Davidson. The Secretary as District Representative in the Provincial Society is still a useful link between the latter and the local Society, and our influence was further extended by a paper recently read by the president before the County Teacher's Convention upon the subject of Beautifying School Grounds:

"But perhaps the most important work done by the Society during the year was the plant and flower distribution among the children of the public schools—from seventy-five to a hundred children of all ages received free from the Society some common varieties, such as asters, zinnias, phlox, petunias and geraniums, to be planted and cared for by themselves. The result was most satisfac-

tory. The children interested themselves in the care of the plants, and there was thereby an increase of about a hundred well kept and tastefully arranged little flower pots in the city during the summer. Quite a number of bouquets therefrom, neatly arranged, were presented at the Autumn Flower Show, and in the reports made thereon by the children, clamor vigorously for more plants next year.

"It will be seen from the above that the Society have some reason for congratulation upon the work being done by and through its instrumentality. It has done something, but much more remains to be done. The awarding of prizes for cottage and flower gardens and well-kept grounds, and of prizes to the school children for flower and vegetable plots, the plant and flower distribution among the children of the public schools, the promotion of tree, shrub and flower planting upon our school and other public grounds, the holding of cottage and garden meetings of the Society, which are pleasant and practical object lessons to those who attend, the reading of timely and useful papers upon subjects of practical interest, the hearing of lectures by experts from the Provincial Society—all of these things, which the Society has done during the past two years, are useful and educative; they have awakened a wider interest in the subject of fruit growing, floriculture and kindred topics in our community, but a large field still remains for our attention, occupation and active operation.

"The citizens of Woodstock frequently boast—and not without cause—that they have a beautiful city. Nature has done much for it, and the hand of man something. But, though a beautiful little city, it is not yet the city beautiful. To make it so should be the aim of our Society and all its members. Much remains to be done. The streets are not yet all tree lined, nor have they all well-kept boulevards. There are not yet enough parks for the convenience and pleasure of our people and their children, and those that we have are inadequately, indeed badly cared for. Our church and hospital grounds are not yet fully equipped with trees, shrubs, climbers and flowers. Only two of our school grounds have been improved in the same direction, and our cemeteries are still capable of improvement and beautifying. Then I should like to see a suburban avenue, which when graded, drained and tree-lined would afford a delightful drive or wheel all about our beautifully and picturesquely located little city. This should be begun at once. It need not necessarily be an expensive undertaking. Existing streets could be utilized, and I am satisfied that the active interests of citizens who reside in the outlying districts of the city, could be enlisted in a project, the completion of which would improve their properties and provide for them and for their children much pleasure. I venture to commend these matters to the favorable attention of my successor and his colleagues in office, and for whom I solicit an even more kindly and general support than has been extended to me as president.

"It is gratifying to learn from the Treasurer's report that although our expenditures have been rather more generous than usual, the balance on hand is still the same as last year."

WALKERTON.

The Directors of the Walkerton Horticultural Society, in presenting their first annual report to the members of the Society since the affiliation of the Society with the Ontario Fruit Growers' Association, congratulated the Society on its prosperity during the year 1902 and that the Society had affiliated with the Fruit Growers' Association.

Bearing in mind the objects of the Society, your Directors made arrangements early in the year for and held a meeting in the Town Hall, Walkerton, on Thursday evening, March 13th last. This meeting, the first of its kind in town, was a perfect success. The Walkerton Orchestra provided good music. The speakers of the evening were Mr. T. H. Race, of Mitchell, and Mr. L. Woolverton, of Grimsby. The former gave a delightful and inspiring address on the influence of flowers upon the life and character of children, and the latter upon the subject of landscape art as applied to home and school grounds.

On the first of August last the Society held a Flower and Plant Show or exhibition in the Town Hall. No prizes were offered. There was a large and fine exhibit of flowers and plants, and those who attended were highly pleased with the entertainment and expressed the hope that the Society would make the exhibition an annual event. School children were admitted free. Each member of the Society received free three admission tickets. There was taken at the door \$4.70. After the close of the exhibition all the cut flowers with the consent of the exhibitors, were expressed to the Sick Children's Hospital in Toronto, where they were thankfully received. We hope that the directors of 1903 will hold another exhibition during the coming summer, if the season at all proves favorable, and that it be held later in the season than last year's. Every member of the Society, as well as every lover of flowers, should make arrangements early in the season so as to be prepared to be an exhibitor, and we hope every one will assist in making the exhibition of 1903 a most enjoyable success.

During the year 1902 this Society had eighty-nine members who each paid \$1.00, and as required by sub-section (a) of section 11 of the "Agricultural and Arts Act" of Ontario, we hereto annex the names of the members. We feel confident that if the objects and benefits of the Society become better known in the community the membership of the Society will greatly increase. Each of the members for the year 1902 received monthly a magazine, "The Canadian Horticulturist," and as a premium with that magazine each member received one of the following plants under its plant distribution for 1902, viz:

- (a) Plant called Iceberg, a new white blackberry.
- (b) Flowering shrub, *Deutzia Lemoinei*.
- (c) Grape vine, Campbell.
- (d) Hardy flowering shrub, Siberian Pea Tree.

The magazine was read with pleasure and profit by the members.

Your directors also purchased from Mr. Sherington, of the Experimental Fruit Farm at Walkerton, and from Mr. W. E. Norrish, at Walkerton, a quantity of fruit trees, shrubs, vines, plants and

bulbs, and last spring distributed them among the members, viz: 13 palms, 144 tuberous rooted begonias, 6 caladiums, 12 spotted leaf callas, 12 cyclamen, 36 tigridias, 9 cannas, 84 gladioli, 56 roses, 30 Japanese lilies, 8 clematis, 8 Madeira vines, 8 cinnamon vines, 15 cherry, 42 plum and 6 apple trees, 6 currant bushes, 5 dew berries and 60 black and red raspberries. During the fall of 1902 your directors distributed among the members a quantity of flowering bulbs, viz: 150 hyacinths for pot culture, 300 bedding hyacinths, 1500 tulips, 600 crocus, 300 narcissus, 25 Chinese sacred lilies.

The Ontario Fruit Growers Association favored our town and society by holding its annual meeting here on the 1st, 2nd and 3rd December last, and the executive committee of that Association recognizing the fact that the Horticultural Societies of Ontario had been a great assistance to the Fruit Growers' Association held two special sessions for those interested in flowers, etc. Those who attended these meetings received a large amount of pleasure and benefit from them. The papers read and addresses given were all by gentlemen of culture and experience, and as a stenographer was present to report the proceedings and addresses the members of our Society will receive the benefit of them in the coming publication of the Annual Report of the Fruit Growers' Association. Every member for 1903 will receive a copy of that report.

Your Directors through Mr. Norrish purchased a number of plants and bunting to decorate the hall. The plants were sold at a small loss after the meeting, and the bunting remains on hand for future use for exhibition purposes. The thanks of this Society are due to Messrs. Dale, of Brampton, who gratuitously supplied all the beautiful and welcome roses, which made such an elegant display on the table in the room where the Horticultural meetings were held.

During the one of your directors, Mr. D. MacGillivray, Manager of the Canadian Bank of Commerce here, was moved to a similar position in Windsor, Ont. Your Directors and the Society have suffered material loss by the removal of Mr. MacGillivray who took an active part in the organization of this Society, and spent time and money in making the flower show of 1902 a success, and also in planting trees on our streets. As he is a budding botanist and fond of flowers and plants, he encouraged others in the cultivation of their gardens, and was a good example to them as well as to those fond of civic improvement. He was of great service to us.

We would recommend that the Directors of 1903 take early steps to induce the Town Council, Board of Trade and Trustees of the High, Public and Separate Schools to act jointly with the Directors in the matter of planting and taking care of our street shade trees, and induce the Department of Militia and Defence to remove the old and dilapidated board fence at the old drill shed ground, and level and seed the ground. The grounds are near all the schools in town as well as to the county public buildings and churches, and in their present state are an eyesore to every citizen as well as destroying the beauty of the adjacent public buildings and private residences.

Your Directors would also recommend that the

Town Council declare one-half of Arbor Day or another earlier day if suitable according to the season as a public holiday for the purpose of enabling the members of this Society and citizens generally to plant shade trees and flowering shrubs on our streets and public park known as the Bend and principally on the three streets around the old drill shed grounds (providing the authorities remove the fence and otherwise improve the appearance of the grounds) and generally to promote out-door art and public beauty.

We would also recommend that the Directors offer prizes for outside window box gardening and hanging baskets during the coming season.

OUR BOOK TABLE.

"MILLIONS OF TREES" is the title on the front cover of a very attractive catalogue issued by our advertiser, D. Hill, the veteran grower of evergreens at Dundee, Ill. Mr. Hill has been "at it" for more than forty years, and is known not only all over this land, but in many foreign countries. He is a native of old England, where forestry is more intelligently understood than here. He grows all his stock from seed and develops them into thrifty, hardy trees. Those who deal with him once do so again and again as need arises. Write for his catalogue and mention Canadian Horticulturist when you do.

CATALOGUES—CACTI AND SUCCULENTS, I. H. Callander, Canadian Cacti Specialist, Woodstock, Ont.

REPORTS.

FAIRS AND EXHIBITIONS, 1902, Ontario Dept. of Agriculture. FARMERS' INSTITUTES, 1901. Part II Women's Institutes. TRIAL PLOTS OF GRAIN, FODDER CROPS, etc. Dr. Saunders, Central Experimental Farm, Ottawa, 1902.

PRICES CURRENT.

AGRICULTURAL CHEMICALS AND FERTILIZERS.—The market continues firm and steady, with an upward tendency. Southern business is picking up, and prices are well maintained. Nitrates of soda remain strong and sulphates of ammonia are a little stiffer.

AMMONIATES.

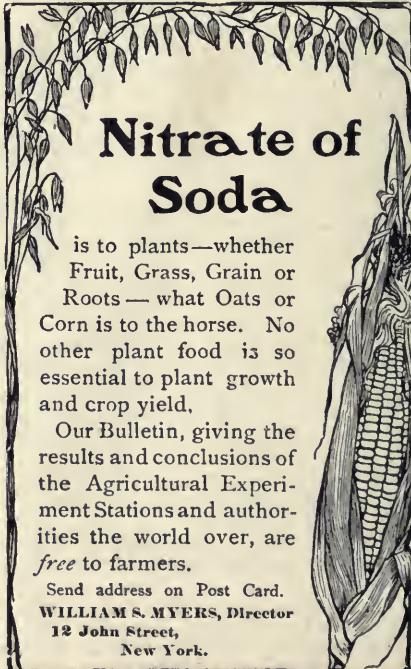
Ni rate of Soda, spot, per 100 lbs..	\$ 2.05 a	\$ 2.10
Nitrate of soda, futures, " ..	2.00 a	.....
Cottonseed meal, p. ton, c.i.f. N.Y.	27.00 a	28.00
Sulph. ammonia, spot.....	2.05 a	2.07½
Sulph. ammonia, shipment	2.05 a	2.07½
Dried blood, N. York, low grades,	2.45 a	2.47½
Dried blood, Western, high grade,		
' fine ground	2.57½ a	2 60
Fish Scrap. at New York.....	2.55 and 10c.	
Tankage, per unit.....	2.57 a	2.65 and 10c.

PHOSPHATES.

Acid phosphate, per unit.....	55 a	60
Bone black, spot, per ton.....	16 00 a	16.00
Ground bone, per ton.....	21.00 a	23.00
S. C. phosphate rock, ground, per		
2,000 lbs	5.00 a	5.50
S.C. phosphate rock, undried, f.o.b.		
Ashley River, 2,400 lbs	3 00 a	3.25
do do dried....	3.25 a	3.50
Florida, high grade phosphate rock,		
f.o.b. Fernandina, per ton.....	6.50 a	7.00
Florida land pebble phosphate rock,		
f o.b. Fernandina, per ton.....	4.00 a	4.50
Tennessee phosphate, f. o. b. Mt.		
Pleasant, domestic	3.25 a	3.50
do do foreign.....	3.75 a	4.00

POTASH.

Kainit, future shipment, per ton..	9.05 a	.....
Keiseret, future shipment, per ton.	7.35 a	7.50
Mur. potash, 80 p.c., future shipm't	1.80 a	.....
Double manure salt (48 a 49 p. c.		
less than 2½ p. c. chlorine), ship-		
ment, per lb.....	1 09 a	.....
	Basis 48 p. c.	
High grade manure salt (90 a 93 p.		
c. sulphate potash), shipment....	2 08 a
	Basis 90 p. c.	
Manure salt, in bulk, 20 p. c. per		
unit, O. P.....	62 a	64



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FIG. 2542. HUBBARDSTON.

THE CANADIAN HORTICULTURIST

MARCH, 1903

VOLUME XXVI



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HUBBARDSTON

(HUBBARDSTON NONSUCH.)

ON the model prize list which has been issued by the Canadian Association of Fairs, in their first annual report, we note the name of the Hubbardston, a variety of apple which is less known and less cultivated in Ontario than its merits deserve. It is really one of our best early winter apples, being higher colored than King and more productive than Ribston.

In those sections where it has been found to succeed, this apple should rank high for planting in the commercial orchard; but we hear so little about it at our meetings, and so seldom see it at our fairs, that we conclude it has not been tried in many parts of our province. Some years ago we received some samples from a subscriber at Beamsville, which were very fine and beautifully colored, and the grower said he counted them among his most valuable market apples. Mr. A. A. Wright, M. P., of Renfrew, speaks most highly of the apple for a retail trade, and says that it is the favorite variety called for by his customers.

The Hubbardston originated in Hubbard-

ston, Mass., whence of course it takes its name.

ADAPTATION.

E. MORRIS, Fonthill :—The "Hubbardston" apple is not grown extensively in this section, just a few odd trees. The apple as grown here is a very productive one and of good quality, but ripens a little too early for profitable shipping.

A. E. SHERRINGTON, Walkerton :—The Hubbardston does well here with Mr. Shaw. The tree is a vigorous grower and an annual bearer, and the fruit does not spot. I think it would be profitable.

A. M. SMITH, St. Catharines :—Hubbardston Nonsuch is not much grown in this section, but among our packers is highly esteemed. Titterton & Co. say it is one of the best of the late fall for market. I have never fruited it myself. Some have confounded it with the Blenheim Pippin, which it somewhat resembles, but is smaller in size and a little better keeper, being classed by Downing as an early winter.

Notes and Comments

AN APPLE TOWN.

IF there is any town in Ontario deserving the name of "Apple Town," we think it is Brighton, for not only are there apple orchards all about it, but also all through it. The visitor must note that every garden, and almost every door yard is an orchard; the people make their living out of apple growing; they eat apples, they sell apples, they talk apples. Nothing is of any importance, unless it is associated with apples. You hear every group of men discussing the rise and fall of the apple market; the number of barrels stored in Brighton, the number stored in Ontario, in Quebec, in Maine, in Ohio, in New York; and the time to ship to strike the best market.

We were told on good authority that the apple crop in the village of Brighton itself—within the corporation—in the year 1896 was over 10,000 barrels! Think of that, you villages with waste back yards, and profitless gardens.

Oh you say, the conditions are different.

True, but they can be made the same. Get some one with capital to put up an apple house, if you are in an apple growing district, and very soon you will have similar conditions.

THE APPLE HOUSES.

The flourishing condition of the villages of Brighton and Colborne is largely due to the apple houses. These give employment to hundreds of men; they afford frost proof shelter for the crops of the twenty acre orchard, of the quarter acre garden, and the single tree; they bring buyers

and shippers together after the rush of the apple harvest is over.

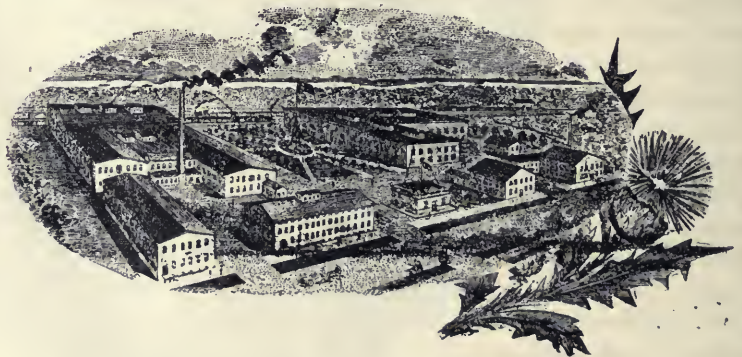
There are four large apple houses at Brighton viz :

Sam. Nesbitt's, capacity	50,000 bls.
Butler's.....	" 14,000 bls.
Wade's.....	" 10,000 bls.
Webb's.....	" 10,000 bls.

Total, 104,000 lbs.

There are three storage floors, inclusive of the cellar, and the buildings are made frost-proof by insulated walls. No ice is used for cooling, but the doors and windows are opened in cold weather sufficiently to keep the temperature down as nearly as possible to the freezing point. Indeed, they claim that apples are perfectly safe from freezing with the thermometer standing at 32 F. Unfortunately, however, it went below that degree last winter in some of the houses, and many stored apples were badly frozen, and, in consequence, are being hurried forward.

The apples are picked from the trees into the barrels, but not sorted or packed; they are headed and brought into the storage house to be emptied and packed during the winter, thus affording winter work for the men, and giving time for proper packing and marketing.



Canning Factory.

Apple Houses.

Can Shop.

Office.

Evaporator.

FIG. 2543. NESBITT'S APPLE HOUSES.

These apple houses are paying investments for capital, and should pay a high percentage on the investment in apple growing districts. At Brighton and Colborne the charge for storage is six cents a barrel for the season, with the use of a packing room, and this for a house holding 10,000 barrels would yield an annual rental of \$600. The storage houses are made use of by buyers operating at distant parts, who ship to these houses and bring their gangs of packers to put them up in winter, the Grand Trunk charging eleven cents a barrel on the through bill of lading for the stop-over at Brighton.

THE PACKING ROOMS.

OF COURSE men must be comfortable for their work, and excellent packing rooms are afforded by closing off about ten feet of space along the whole length of one side of the building on each floor, with numerous windows, and with packing tables along the wall. These long rooms are made comfortable with stoves, and the barrels brought in for packing and taken out for storage through slide doors in the partition here and there, and afford ample space for all the gangs of packers.

BARRELS VS. BOXES.

NO boxes are used for apples at Brighton, the only package being the standard apple barrel.

"In 1895," said Mr. Dudley, of the firm of J. G. Dudley & Co., "I gave the box package a thorough trial to my great loss. I put up 12,000 bushel boxes, at considerable cost for wrapping paper and work of packing. I shipped them to Liverpool, and when I came to compare my account sales with those of my neighbors, who shipped in barrels, I found I had lost about \$1800; so I have no confidence in the box package."

Probably his conclusion is correct with respect to the auction market, for the broker and his auctioneer have no patience with the

box; but the retailer and consumer appreciate them, and would pay well for them if we could but reach them.

PRIVATE SALES BEST.

WE must not ship our fancy boxed apples on consignment; they must be sold by private sale on their merits. Now that the hurry of disposal is done away by cold storage why should high grade apple stock in boxes be shipped on consignment any more than any other food product?

"You are correct in that," said A. McD. Allan, of Goderich, whom we met at Trenton, "and there is an unlimited opening for private sale of high grade stock. For example, last summer I sold one thousand forty pound boxes of Canadian apples at eight shillings to go to Leith. All that is needed to lead to an unlimited sale of Canadian apples f. o. b. in the orchard, at splendid prices, is to establish *confidence in the grade*. There is still much to be desired in this particular. I have been disgusted during my stay in Great Britain with the incorrect naming of Ontario apples, which much depreciates the selling value; besides, I think, there is yet much to be done by our Government Inspectors. Too much faulty stock goes forward as No. 1, that should be classed No. 2; and the inspectors should be more strict in their inspection, and not allow such grading to pass."

"The trade at home (England)," said Mr. Eben James, of Toronto, "want a large package in a large season, and we have to use the barrel to get the crop cheaply marketed. In the private sale business the box may be all right, but I assure you very often a private sale man will turn down a lot on the least provocation, and you have to get a broker to sell them on their merits; this has been my experience in the past ten years, including four years before I became Woodall's agent. Then again, if you take the cream of the fruit and put it in boxes,

the barrels are not going to average very much. Besides other food products are largely shipped on consignment to brokers, such as cheese, butter, and eggs to a certain extent."

HOW LONG TO STORE APPLES.

THE question when to ship for best prices seems very unsettled, and probably varies every year. The Brighton apple men are now rushing forward all their stock in order to finish shipping by April 1st. They say that this continent has such an unusual quantity of apples in storage that the price cannot advance.

Mr. Allan gave his opinion that our apples should not reach England later than April, else they will meet the early fruits of Spain, and the Tasmanian apples. On the other hand we notice that Woodall's reports of Baldwin sales always reach the top notch in spring time. So we are still at sea, and cannot conclude this question.

APPLES PAY.

NOBODY about Brighton thinks of digging out his apple trees. They pay too well. One packer at Brighton took about 2,000 barrels off his nineteen acres and sold them for \$4,900. They were Phoenix and Baldwin. "I can beat that record," said Oscar Chatterson, of Brighton, "In 1896 I took 1,088 barrels of apples off four acres, but I did not get much for them that year."

"In 1898," said Mr. F. C. Morrow, "I was saved from disaster by a car of Mann apples. I had met poor sales and two carloads of my apples had been frozen at Montreal, though they were inside a refrigerator car, so that I was utterly discouraged. On the 17th of March I forwarded a car of Mann apples to Liverpool and got a net return of \$4.40 per barrel! and for a carload of Spys I got \$3.00 f. o. b. to go to Montreal."

PLAIN BRANDING.

IT is a great mistake," said Mr. Allan, "to use rubber stamps or indistinct

pencil marks for the name of the variety; this is too important to be done carelessly; it should be made plain and distinct so that it would not be easily erased, and could be easily read."

We noticed that the Brighton people do this well. They use nicely cut stencils for all marks, and printer's ink as a marking fluid. They thin it with coal oil, and apply it with a brush, neatly and quickly.

THE TRENTON STORAGE.

MR. EBEN JAMES, who represents Woodall & Co., Liverpool, has perhaps the best situated apple house in Ontario, because at Trenton there are both Grand Trunk and Pacific lines in competition, and the Central Ontario R. R. to bring stock from the interior; while all about the Bay of Quinte, calling at least at twenty docks plys the Steamer Verona, gathering the apples of the farmers and landing them directly upon the commodious wharf of the Trenton Storage House. There are no wharfage, or cartage charges. The building is of stone, 94 x 124 feet and the cost about \$40,000; when completed it will be four stories high, and afford accommodation for about 50,000 barrels of apples. Refrigerator machinery will be put in next season, so that apples can be held at any desired temperature from "start to finish;" and for convenience of handling there will be barrel lifters, hoists and carriers, so that unloading from the cars, or loading upon the cars or upon the steamers for Montreal can be done at the least expense. The Richelieu line of steamers will call two or three days a week, and there are besides two daily boats.

The cost to the grower who chooses to store his apples, will be: 1st, the additional charge on the through bill of lading by the Railway Company of 11 cents a barrel, 10 cents a barrel for the cold air storage, or 25 cents a barrel for refrigeration, a total of from 21 to 36 cents a barrel. To this must be added the extra cost of repacking,



FIG. 2544. W. H. DEMPSEY'S FRUIT HOUSE.

for the apples for storage are picked directly into the barrels and all need repacking, which is worth about 15 cents a barrel; or a total added cost to the price in the orchard of at least 41 cents a barrel. It is therefore evident that when a farmer is offered \$1.00 a barrel for his apples on the trees, the buyer to pick them, he is receiving a fair price; for the picking is worth 10 cents a barrel, the barrel 35 cents, so that he is receiving an equivalent of $\$1.00 + 41 + 10 + 35c$, or \$1.86 net for his apples, stored and packed; or, if not stored, since he would still have the 15 cents cost of packing, $\$1.00 + 10 + 35$, or \$1.60 a barrel net, a price which he might not realize if he shipped on consignment, unless the market rules high.

The president of the Trenton Apple Storage Co. is Mr. Harry Pedwell, an experienced capitalist, and the managing director is Mr. Eben James, of Toronto.

TEMPERATURE FOR KEEPING APPLES.

IT has been much debated at what temperature apples will keep best, some claiming that 40° is low enough, but actual tests show that the nearer they can be kept to the freezing point in safety, the longer

they will keep without change. "I try," said Mr. Eben James, "to keep the temperature in my storage between 30° and 32°, and I find that the apples in barrels will stand that without injury, and that scab will not develop on the apples held at such a low temperature."

Mr. James has the packing done in this temperature also. He objects to packing rooms such as used at Brighton and Colborne, which are heated by stoves, because apples brought from 32° to 60° or 70° will at once become wet from the condensed vapor, and these sudden changes injure them.

OUR APPLE STATION.

IT WAS well planned when we selected Mr. W. H. Dempsey as our experimenter in apples, a large apple grower in this great apple district. He has about fifty acres in apple trees himself, and his principal varieties are as follows:

Ben Davis.....	600 trees.
Spy.	500 "
Snow.....	400 "
Baldwin.....	200 "
Greening	200 "
King	65 "
Ontario.....	50 "

besides an endless list of smaller lots.



FIG. 2545. A VIEW IN W. H. DEMPSEY'S BEN DAVIS ORCHARD.

Mr. Dempsey has had great satisfaction with Ontario. It comes into bearing so early, the fruit is so even in grade, and it will sell for Spy on the markets, it resembles that variety so closely in appearance, but it is inferior to it in quality.

"I have exported the Duchess," said Mr. Dempsey, "in barrels this season in ordinary storage, but did not meet with much encouragement; they only netted about three cents a barrel more than I got for those I sold in Montreal, and that was too small a margin for the increased risk."

THE BEN DAVIS.

"**N**OW, Mr. Dempsey, what do you think of Ben Davis; you have more of them in your commercial orchard than any other kind?"

"It always pays me well," said he, "but it has its own season in the market, and that is toward spring, after the Baldwin and Spy have been well cleared out. Nobody wants

to eat a Ben Davis in fall or early winter; it is not ready so early. My own family use more Ben Davis than Baldwin, because in Baldwin season they prefer to use Spy; but when these are over, say in April, then they call for Ben Davis, and by that time it is good for all purposes."

Mr. L. K. Shourds, of Wellington, Prince Edward County also championed the Ben Davis. "Why," he said, "in March, 1900, Pritchard, of Liverpool, authorized me to buy for him, and pay \$2.75 for Ben Davis, and only from \$2.25 to \$2.50 for other varieties. At that season the old Ben turned out in better and more salable condition than Baldwin or Spy."

"In Ottawa, only last week (about the middle of February)," said Alex. McNeill, of Ottawa, one of our fruit inspectors, "I saw Ben Davis sold at \$2.50 a barrel, when good Snow apples were only bringing \$2.00!"

So it appears that old Ben still has his friends.

BEN DAVIS FOR STOCK.

"I HAVE great confidence in Ben Davis for top grafting upon," said Mr. Shourds. "A Spy tree is apt to split at the crotch, but Ben Davis is tough and does not break down; besides Spy, top grafted on Ben Davis, bears fairly early. I have an instance where I top grafted Spy on the branches of a Ben Davis at three years after planting, and at seven years it began fruiting. I am planting twenty acres to Ben Davis trees, and if I want Spy I will have first-class stock upon which to top graft it."

PHOENIX.

THIS apple is grown to a considerable extent in Northumberland County, and some growers value it highly. Mr. Solomon, of Brighton, who was packing at Butler's storage, said he found it quite as productive as Baldwin, as good a shipper and seller; but Mr. C. W. Crandall, of Colborne, thought it inferior to Baldwin, and all owned it was not as good a keeper, and should be shipped before January or it would discolor. The samples given us on January 20th however, were still bright in color and in excellent condition.

SIZE OF BOXES FOR FRUIT.

WE are frequently asked to give the proper size for the apple and pear box for Ontario; but really the question is not very easy of answer, so many have been the changes. We believe, however, that the apple box adopted for 1903 by our meeting at Walkerton is the most desirable in size, and the one most likely to become the standard for Ontario, and we hope for Canada. This box is 9 inches deep, 12 inches wide, and 18 inches long, inside measurement.

It is practically the California pear box, with capacity for forty pounds of pears. Now in the British market the 40 pound or quarter barrel apple boxes are most in de-

mand, and if we use a larger one, we ship at a loss. This box is suitable for both pears and apples; but for tender varieties such as Bartlett, one 5 x 12 x 18 inside would be better, because only taking two layers of fruit; it would have a capacity of about twenty-five pounds.

FOR CHEERIES, we use the nine pound grape basket, but some have tried the California pear box with success. It measures inside, length 16½ inches, width 10¾ inches, depth 2½ inches. This box takes two layers of cherries, the one layer so placed against the top that no stems show when opened. The capacity is ten pounds.

FOR PEACHES, the California people use a similar box to the pear box described above, but depth inside about 4½ inches; and capacity twenty-two pounds.

MEASUREMENTS OF APPLE BOX. — Mr. George E. Fisher, of Burlington, who was a member of our committee on boxes at Walkerton, has been figuring out the contents of our proposed box, and says that although in number of cubic inches it is a little too large to be equal ¼ of our apple barrel, yet in actual trial, owing to packing material and number of spaces about the sides, it is about as near correct as possible, and Burlington growers are adopting the size recommended above. He figures it out thus:

"A standard barrels contains 96 quarts or 6655 inches; $9 \times 12 \times 18 = 1944$ inches; $6655 \div 1944 = 3.423$ or $3 \frac{2}{5}$ boxes to barrel; $\frac{1}{4}$ of 6655 = 1664 or $\frac{1}{4}$ barrel; $18 \times 12 = 216$; $1664 \div 216 = 7.7$ inches or less than 8 inches depth. Therefore $18 \times 12 \times 7.7 = 1664$ or $\frac{1}{4}$ barrel by measure. Four boxes $18 \times 12 \times 8$ does not fill a barrel because of the greater number of large spaces about the sides of the box. The size of the required box cannot be determined by figures, but must be ascertained by actual trial. 3 and $\frac{2}{5}$ boxes, $9 \times 12 \times 18$ are equal to a barrel in measure, but it does not work out that way, and our boxes are ordered $9 \times 12 \times 18$ as recommended by the Walkerton meeting.

NO CONNECTION WITH NURSERYMEN.

MR. D. S. BURK, of Fergus, asks where he can buy the Gold Plum and the Crosby Gooseberry. He has written to several of our experimenters without satisfaction.

We are glad to have this opportunity of stating publicly that we have no connection with, nor interest in any nursery. If we had, our opinions of varieties might be biased by a desire to boom certain varieties. The work of our association and the aim of this journal and of the report to the Department on fruits tested at our fruit stations, is wholly in the interests of practical fruit growers, and not of nurserymen. We aim to save the fruit growers money by testing all fruits offered for sale, and reporting to them their real value, condemning without stint those that are humbugs.

For the purchase of fruit trees we refer our readers to those nurserymen who advertise in these pages.

LINDLEY AND VERGENNES GRAPES.

MR. E. D. SMITH, of Winona, would qualify the remarks about the Lindley as given on page 51. He would not entirely give up the Lindley grape, for on a somewhat heavy soil it succeeds fairly well planted alternately with some good pollinizer blooming at the same time, such as Concord or Worden.

The Vergennes he considers one of the most valuable varieties. It is very productive, the fruit is of fair quality and one of the very best of shippers. Its only defect is its over-productiveness, hence it must be very severely pruned. Twenty good buds will produce twenty pounds of grapes, which is as much as a vine should be allowed to produce even on the best of land.

THE PLUM MARKET--AN EARLY DESSERT PLUM WOULD SELL.

MR. SMITH also qualifies his remarks on page 52. He would not say that

we are planting too many of all varieties of plums, but only of some varieties; nor would he say that it is ever impossible to dispose of the crop at some price, but sometimes we can no longer get the old paying prices.

In addition to the demand for good late plums, Mr. Smith finds a demand for an early plum of real good quality for eating out of hand. Such a plum would pay exceedingly well, especially in the Niagara district, which is the natural home of the plum. Here the trees thrive so well and are so productive that they can be grown at a profit, even if sold at very low prices.

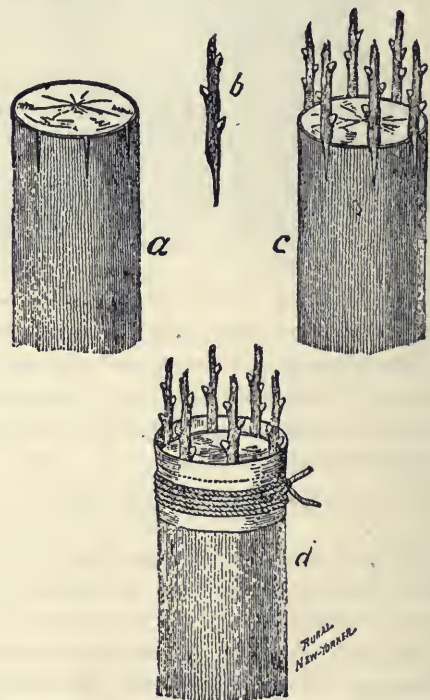


FIG. 2546. CROWN GRAFTING.

CROWN GRAFTING.

MR. A. C. ABBOTT, of Mountain Grove, Ont., writes:

SIR:—As I am now a member of your association I am going to ask you to devote some space to the work of Crown Grafting and Cleft Grafting, especially the Crown Grafting of large limbs on old trees. I am a new member of your society and

am after all the good information I can get upon fruit growing.

We do not recommend Crown Grafting as the best method or renewing old trees, but only as an easy and fairly successful method which any novice may try with fairly good results.

The cuts which we give show clearly how it is done. A fairly large limb is smoothly cut off well back to the trunk (Fig. 2546 *a*), or in some cases an upright trunk is cut off leaving a few limbs below the cut. Cions from bearing trees, of the required variety, are cut in advance and kept in a cool place till required so that they may not push their buds before setting. These cions are cut with a long, smooth, sloping cut from one side only, and pushed down under the bark, which may first be partly raised with a knife. From two to six are set to a cut according to the size of the limb (*b c*). Grafting wax need not be used for this primitive method, provided mud of some clayey texture can be secured. To hold the grafting clay in place wrap the part with a strip of stiff paper about four inches wide, and tie with a string, leaving the edges to project about an inch above the cut. This will form a basin to hold the clay. We have tried this quite often with perfect success.

CLEFT GRAFTING.

FOR a first-class job, however we would much prefer the more scientific method of Cleft grafting. It takes more time because you must work upon the smaller and outer limbs of younger growth, and a great many more cuts must be made to transform a tree to a new variety. Indeed it is usual to do a part of the tree only in a single season, and complete the job the following year, when any failures can be re-grafted. These remarks of course apply to large trees, but in case of small trees the whole top may be cut off at the height desired for the top, and the scion inserted by

what is called whip grafting, which is well shown in the accompanying cut from Farm and Home, from which also we take the following details:

The sloping cut or tongue must be fitted in a little more carefully, however, and the juncture wrapped with cloth or covered with grafting wax. If the stocks are of moderate size, a cloth is preferable. This is called whip grafting. For larger trees and for branches, say an inch in diameter and upward, cleft grafting is practised. The branch is cut or sawed off; the lower end of the scion is cut into the form of a wedge

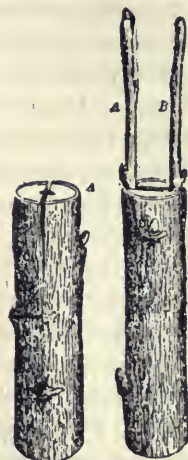


FIG. 2547. CLEFT GRAFTING.

Fig. 1, the stock cut horizontal across at A. Fig. 2, the same with two scions, A and B, inserted.

stalk. This bud hastens the union the same as a bud down in the earth in root grafting facilitates the growth of roots. The outer edge of the wedge-shaped cuts should be thicker than the inner. The stalk is split on one end by laying a chisel on the cut surface and striking lightly with a mallet. The split is kept open with a knife or chisel until the scion is inserted. Two or three scions may be put in each branch, so if a part of them die some still remain. If all grow, cut off all



FIG. 2548. SPLICE OR WHIP GRAFTING.

Fig. 1, scion with sloping cut on one side like a wedge; A, bud at the shoulder; B, section showing shape of wedge. Fig. 2, the stock cut and split; A, the sloping cut; B, horizontal cut. Fig. 3, the scion inserted in the stock.

but the strongest one. Coat the surface and the base of the scion with grafting wax or wrap them carefully with grafting cloth. The grafting wax should be just hard enough to be easily worked with the hand. If large surfaces are to be covered, it is well to have it quite liquid so that it can be applied with a brush. It, of course, has to be kept warm during this time. Be sure to have sharp knives, so that clean, smooth cuts can be made. There must be perfect contact between the inner barks of the scion and stock. Every portion of the split and the cut surface of the scion must be covered with wax to keep out rain.

Grafting wax is made by melting together 2 lbs. resin, $\frac{1}{4}$ lb. beeswax and $\frac{3}{4}$ lb. of tallow. For whip grafting, it is very convenient to use grafting cloth. Tear muslin into balls like ribbon rolls and place in melted grafting wax until thoroughly saturated. Grafting paper is quite handy and is prepared by spreading the wax while warm over one side of a sheet of paper by means of a brush. When cool, cut into strips and roll.

THE NIAGARA GRAPE

COULD find plenty of admirers in the warmer sections of our province, where it ripens its fruit to perfection. For example, Mr. E. Morris, of Fonthill, writes :

"In reply to your enquiry, I would say the Niagara Grape is the *best* all round white grape grown in this section, and is being used quite extensively for a wine grape, but I do not consider it a first-class grape for that purpose, as it gives the wine a foxy flavor."

GRAFTING CHERRIES AND PLUMS.

THE above directions apply to apples and pears, which may be grafted quite late in the spring. Indeed, we have been successful with apples as late as the first of June, providing we had scions still in dormant condition ; but with cherries and plums more care must be taken, and the

work must be done early in March, before the sap begins free circulation. The Prairie Farmer gives the following directions for grafting these fruits :

"Do the work on a warm day, so your wax will be soft. I have top-grafted plums, and the thermometer went down to 40 degrees below zero afterwards, and they did well. Apples and pears can be attended to later ; I have top-grafted apples after the buds had started, and they did well. You can use this kind of a graft just as



FIG. 2549. GRAFTING THE PLUM AND THE CHERRY

high or low as you want. In making the scions, see that there is a bud just at the base of the cut. It is claimed by experts that there is more life around the bud, consequently it unites there first. Fig 2549 *d* shows how the cut is made in tree and scion inserted. Fig. 2549 *a*, shows how wound ; *b*, how waxed ; and *c*, how wound with some old muslin (white is preferred), over the waxed part, to keep the sun off. It is not necessary to wind as shown in *a* for top-grafting.

"Recipe for wax : 1 lb. resin, 1 ounce beef tallow, 1 tablespoonful spirits turpentine, 5 or 6 ounces alcohol. Melt resin slowly, take from fire ; add tallow, stirring constantly. When still cooler, stir in the turpentine slowly ; then add alcohol. The object of the alcohol is to thin the wax so it can be used. We do all of our root grafting on cherries, plums and pears this way, excepting the muslin, and use thread in

winding, as shown in Fig. *a*. The top end of the root, where it is cut off, next to the cion, has a ring of bark left on, which is necessary.



FIG. 2550. APPLE TREE PRUNED FOR PLANTING.

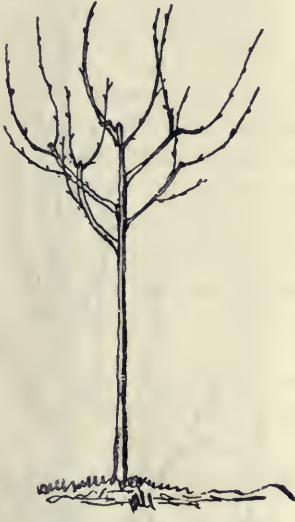


FIG. 2551. APPLE TREE AT END OF FIRST SEASON.

THE SPRING PRUNING.

WE have more than once called attention in these pages to the foolish method of pruning the apple tree, which we see practised by farmers every spring. The lower branches are annually removed, until in time the tree top is almost out of reach, and most unsightly in form.

There should be a complete change of method. The object should be to keep the bearing wood near to the main trunk, and to produce a compact, symmetrical head. The branches that are reaching upward should be topped back, and all should be thinned at the outside. Bearing fruit spurs should be encouraged to grow upon the inside branches, down to the very trunk; and thus a tree will result that is not only beautiful to the eye, but also a filler of the purse.

PRUNING WHEN PLANTING.

A SUBSCRIBER wants to know how to treat young trees during the first few

years after planting. The answer depends somewhat upon the kind. A young peach tree, when set, may be pruned to a whip, and the head formed from the buds near its top. Individual preference must decide between a low or a high head, but our own preference is for a low head, so that fruit may be produced almost to the very ground. Ploughs, cultivators and discs are now made to accommodate the fruit grower, so that he can reach under such low headed trees without bringing his horse so near as to injure them; and, if a little extra work is caused in the cultivation, it is made up in the comfort in gathering the fruit, and in the greater health and beauty of the trees.

In setting young apple trees, it is usual to plant three year old trees with the tops already formed, which are then cut as shown in Fig. 2550. At the end of the season the tree will appear somewhat as in Fig. 2551, which will need some thinning according to the judgment of the owner; and so on from year to year. This annual treatment should never be omitted for a single season, if well formed trees are desired.

PEACH PRUNING.

Wm. Burgess, Queenstown, writes :

SIR,—Some authorities tell us that late spring is the safest time to prune the peach. Is there danger of injuring young peach tree through early pruning?

We have never seen any serious injury from cuts on peach trees made in winter. We see no reason why this work should not go forward during the months of February and March, when there is plenty of time to attend to it. Many of our best peach growers shorten in their peach trees every spring, cutting back from one-half to two-thirds of the young wood. This not only thins out the fruit buds of the current season, but it also increases the amount of bearing wood for the succeeding year, and lengthens the life of the tree.

PRUNING THE DWARF PEAR.

VERY few of our Ontario fruit growers give the least attention to the proper training of their dwarf pear trees. Standards and dwarfs are all pruned after the same manner, and usually that is by no means the best.

In our engraving we present to our readers the proper form in which a dwarf pear tree should be trained. It is called "pyramidal", because of its shape. The first year a thrifty upright is encouraged; the second year the side branches are grown and cut back to within a few inches of the upright stem, taking a care to allow a somewhat longer growth at the bottom than at the top. The third or fourth pruning will bring the tree somewhat nearly into the form shown in Fig. 2552.

The leading shoot is cut back in proportion to its vigor at every annual pruning, and the laterals shortened on the same principle. The lowest branches are always kept the longest by judicious treatment.

After the dwarf pear has been set six or eight years it will be about full size, and the object will be simply to lessen the wood growth and encourage fruitfulness. Should there be too many fruit spurs produced it will be necessary to thin them out more or less.

An orchard of dwarf pear trees so pruned and loaded with fruit is an interesting sight, and a source of pride to the owner.



FIG. 2552. PROPERLY PRUNED DWARF PEAR TREE.

SOME OLD APPLE TREES.

Seymour Keyser, of Hanheim, Herkimer County, N. Y., has two old apple trees on his farm that are record breakers. One of them is 12 feet in circumference. It is a Holland Pippin, and was brought from Holland in the latter part of the seventeenth century. The tree is still bearing fruit. Another tree fell to the ground over half a century ago; the body of the original

roots have long been decayed. The top of this tree has taken root, and receives its nourishment from the lower end of the top of the original tree. The apples are of the rustycat variety. This tree was also brought from Holland at the same time as the first mentioned, and is also bearing fruit. —*Country Gentleman.*

A SUCCESSFUL HOUSE MEETING

THE GRIMSBY HORTICULTURAL SOCIETY—A MEETING AT THE HOME OF THE PRESIDENT, MR. A. G. PETTIT—APPLE GROWING DISCUSSED—JOSEPH TWEDDLE, OF FRUITLAND GIVES A TALK.

THE Grimsby Horticultural Society find great profit in house to house meetings. People enjoy a quiet, social evening, which is utterly devoid of formality or class distinction, of either society or church. One paper read and discussed, with a few numbers of music and readings for variety, and an hour for informal conversation seems quite enough to provide.

Sometimes a fruit topic should be taken up to interest the men, sometimes a floral topic to interest the ladies; and in this way monthly meetings may be held throughout the winter.

Mrs. A. G. Pettit, president of the Grimsby Society, had the February meeting at her own home on the 8th inst., and a good number gathered to hear Mr. Joseph Tweddle, of Fruitland, talk of his experience in apple growing.

APPLE GROWING.

This gentleman, confident in the efficacy of spraying, when associated with pruning and cultivation, rented some orchards that were in a disgraceful condition through neglect, and which were giving their owners no returns. He followed out the directions given in this journal for tillage and spraying, and as a result cleared a good sum for himself after paying all expenses.

"I believe," he said, "that there are rich rewards yet in store for Ontario fruit growers who give proper attention to our old friend, the apple. With new apple markets opening up both in the east and in the west, it is foolish to destroy an apple orchard, and still more foolish to keep land occupied with apple trees and neglect to care for them. Many of them are simple

brush heaps, yielding little, if any, fruit, and that of the poorest quality. Yet even these orchards can be made to produce fruit that is almost, if not quite, perfect.

HOW TO GET FINE APPLES.

"You must get to work and prune out the rubbish and burn it up; head back severely those trees that are weak, to induce fresh growth, but not those that are thrifty, and thus produce uniformity in your orchard; thin out useless wood; protect the roots with leguminous crops, such as vetch or clover, sown in July; cultivate and manure, and then you are ready for *spraying*."

Mr. Tweddle has had excellent results from his work, so everyone wanted to know how he did it.

"My idea in spraying is protection of foliage and fruit from fungi, so I try to keep them well covered with Bordeaux."

"What do you use to keep off insects?" asked some one.

"I use white arsenic in preference to Paris green," he said, "because it remains in suspension much better."

"Does it not burn the foliage?"

"No, not when used with lime. I boil one pound of arsenic and two pounds of lime in three or four gallons of water for about forty-five minutes, and then use the sediment, an arsenic of lime, in 100 gallons of water. I do not find any injury to the foliage from its use in this way. I have tried the same in my plum orchard, and wholly cleared it of curculio."

"I do not see much use in spraying a plum orchard for curculio or rot," said Mr. Rutherford, of Grimsby, "because with most

varieties the yield is too great, and they must be thinned anyway. Why not let curculio and rot thin them?"

This kind of thinning is too late to help the size of those remaining. The work should be done by hand while the plums are very small, and then the remaining samples will grow to a large size.

"It is useless to spray against the wind," said Mr. Tweddle. "You only waste your material and your time, for the wind carries it back. Always spray with the wind. Do not neglect to spray because of wet weather. I find that it is the very time when the work is most needed.

RESULTS.

"My faithful spraying, united with faithful pruning and tillage, gave me last year the finest yield of Baldwins and Greenings ever known in my neighborhood. I took 800 barrels of almost perfect apples off $4\frac{1}{2}$ acres of orchard!"

Mr. Brennan usually sprayed his orchard five times in a season, and the results were so evident that he would never think of giving it up. During his first year in the orchard he did no spraying and had worms, scab and all sorts of evils, but, since he has been careful to spray thoroughly he has harvested first-class fruit every year.

Mr. D. J. McKinnon had great confidence in the apple. His orchard was on rich, deep, sandy loam; it had not been plowed for eight years, and yet last year it was the most profitable fruit he grew, and he has a magnificent orchard of pears, cherries, peaches and grapes. His apple orchard netted him \$100 per acre. "I feel sorry for a man," said he, "when I see him cutting out an apple orchard that it has taken perhaps twenty-five years to grow into its present proportions."

THE CHERRY.

Some one said he would like Mr. McKinnon to tell whether the Montmorency or the Wragg was the most profitable.

"Well, I have a very large orchard of both in bearing," said he, "and I believe the Montmorency is best."

"Is it as productive as Wragg?"

"Well, no, not in proportion to its size, for the Wragg hangs in great ropes of fruit as heavy as it can carry; but the Montmorency is a larger growing tree, and on that account I think it yields more fruit to the acre. At first, the Wragg brought higher prices, being so very late in the season; but now that Wraggs are coming into our markets from other parts there is not much difference in the price.

THE CHERRY APHIS.

"What would you do for the black aphid?" asked another.

The chairman, Mr. A. H. Pettit, called upon Mr. Tweddle, and he said he had been greatly interested in the success of his neighbor, Mr. W. M. Orr, in treating aphid, spraying his trees, just before the leaf buds opened, with a strong solution of whale oil soap; a treatment which has completely routed the aphid. The usual formula was one pound to five gallons of water, but he would double that quantity. The application should be made before the buds opened, or else the tiny little aphids would crawl down among the open leaves and hide so as to secure from the effect of the spray.

It is a mystery to many where these young aphids come from so early in spring, and we may explain that eggs are deposited in autumn in the crevices and cracks of the bark of the twigs of the apple tree, and also about the base of the buds. In the early spring they may be easily seen with a glass, they are very minute, oval and shiny black. The same warm sunshine that favors the opening of the tender young leaves, also causes these eggs to hatch out into tiny lice, which locate themselves upon the young leaves and suck their juices. All the first broods are females, which produce living young, hence the wonderful rapidity with which they multipl

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

THE Canadian League of Civic Art is the name of a new society which was organized under the most favorable auspices, in the Board of Trade Council Chamber, Toronto, on Friday, the 14th of February, 1903. A great wave of public interest in public beauty is sweeping over the whole of North America, and has reached us in Ontario. We trust it will give new vigor to all our horticultural societies, women's institutions, farmers' institutes, churches, school boards, literary societies, and all other bodies interested in civic improvement. We shall be pleased to make this journal a means of communication between these various bodies, and thus to distribute as widely as possible all information within our reach upon this important topic.

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* *

The following is a partial list of the gentlemen present at the organization meeting, men representing the Society of Architects, the Society of Artists, the Fruit Growers' Association of Ontario, the Ontario Horticultural Societies, the Toronto Board of Trade, the Good Roads Association, and many other bodies.

Among those who were present were: Mayor Urquhart, Toronto; R. Tasker Steele, President Hamilton Civic Improvement Association; A. Alexander, President Hamilton Horticultural Society; Judge A. B.

Klein, Walkerton; John Cape, Hamilton; Charles O. Dexter, Hamilton; F. B. Greening, Hamilton; M. A. James, Bowmanville; Mayor W. E. Smallfield, Renfrew; James S. Scarff, Woodstock; R. W. Rennie, London; George C. Creelman, Superintendent of Farmers' Institutes; D. McClew, Toronto; R. McLennan, Toronto; L. Woolverton, Grimsby; W. D. A. Ross, Chatham; Major R. Y. Ellis, Toronto; T. H. Race, Mitchell; W. F. W. Fisher, Burlington; Peleg Howland, Toronto; J. P. Hynes, Toronto; John H. Kydd, Bowmanville; William Rickard, M.P.P., Newcastle; G. A. Reid, Toronto; George A. Newell, Toronto; E. G. Routzahn, Dayton, O.; P. W. Hodgetts, St. Catharines; Allan Cassels, Toronto; J. F. Scriver, Montreal; P. J. Carey, Cobourg; W. H. Bunting, St. Catharines; W. R. Gregg, Toronto; G. W. Goodman, Perth; J. D. Hayden, Cobourg; Ald. D. Ewing, Cobourg; Newton D. Galbraith, Hamilton; Rev. Canon Forneret, Hamilton, and A. W. Campbell, Toronto.

Mr. George R. Pattullo, Honorary President of the Woodstock Horticultural Society, was elected chairman of the meeting, and Major H. J. Snelgrove, of Cobourg, was made secretary.

The chairman, Mr. G. R. Patullo, pointed out that in Canada we were still a long way behind both in urban and in rural improvement, and our country did not present those



FIG 2553. AN ATTRACTIVE PARK.

evidences of refinement and of culture that were in proportion to her advancement in education. He would like to see the farms and the farm yards made more attractive, the school houses and their surroundings transformed from being the bleakest and most forbidding places to the most inviting and attractive. The park systems should be extended, and in every town and village no time should be lost in securing a site for a beautiful park.

His Worship, Mayor Urquhart, of Toronto, emphasized the great importance of a park system to every town or city, and was pleased to give the hearty welcome of the city of Toronto to this meeting. He wished the project every success, and only hoped that some scheme might be forthcoming by which plans adopted by a municipality for civic improvement might not be neglected by a succeeding body of municipal officers, but might be carried on with some continuity to their completion.

Major Snelgrove said in the first instance his attention had been called to the importance of this civic reformation in an address delivered by Mr. C. C. James, the able Deputy Minister of Agriculture for Ontario, before the Fruit Growers' Association at the Cobourg Convention, where he had suggested that our horticultural societies should become local improvement societies. The speaker said the objects which the promoters of the League had in view were to unite the efforts of all citizens in the systematic development of handsome and wholesome surroundings; to raise the standard of municipal taste and tidiness; to make the Canadian life brighter, healthier and happier. In order to accomplish these aims, they would require organization, perseverance and common sense. Radical reforms along the same lines were taking place in England, whose historic gardens were models of loveliness; and yet it was an appalling fact, which ought to serve as a salutary warning to the

builders of this new nation, that twenty-eight per cent. of the population of England's cities to-day lived in squalor and misery because of unwholesome surroundings. From the year of the World's Fair at Chicago dated this great popular impulse toward civic beauty in America. He proposed that, having effected a permanent Canadian organization, they should all work together for the benefit of all. He would like to see an expert landscape artist employed to go through the Province, visiting all the towns and showing how the finest results could be obtained by the expenditure of mutual labor and money. "But," he said, "in carrying on this work, don't abuse the town authorities and don't attempt to remake the town. Just help it to grow more lovely and liveable each year." He recommended them to encourage the proper planting of shade trees and perennial plants as much as possible. He condemned the common use of water fronts as dumping grounds for tin cans, dead cats and other vile refuse. He would like to see galvanized baskets or boxes provided for the collection of street litter; and unsightly telegraph, telephone and electric light poles wreathed with vines or painted white. Railway station grounds—the town's main gateway—should be beautified. He believed that school gardens would have a most refining influence on our children, educating out of the boys the innate tendency to pilfer fruits and flowers, and instilling in their plastic minds a fondness for the study of nature. He mentioned that in France, Belgium, Austria and Russia the study of horticulture was compulsory in the public schools. He advocated the distribution of flower seeds to school children at say a charge of one cent per package, with a floral exhibition in the fall. Referring to eyesores and how to get rid of them, Major Snelgrove said, "Look at your back yard! Is it tidy and fragrant with flowers? or is it a death-trap, malodorous with the

swill-barrel, with heaps of decaying garbage, and its bare ground slimy with greasy dish-water?" In conclusion he said that the Civic League was designed to serve as a federation of organizations aiming to promote municipal improvement, emphasizing the best means for attaining desired ends, and seeking to bring about unity and harmony between all the forces making for the highest public good. He submitted to the conference a draft constitution and by-laws for the new League.

Mr. E. G. Routzahn, Field Secretary of the American League, quieted the objections of some who feared that the new organization would interfere with work along the same line which has recently been inaugurated by the Ontario Department of Agriculture, through Mr. G. C. Creelman, by divorcing the horticultural societies from the Department and thus weakening their effectiveness. He explained that this Canadian League would be simply a Bureau of Information, a help to all existing bodies who had civic improvement as their whole or partial object, without in the least disturbing or interfering with their present relationships. Its object would be to bring together people who had ideas on the objects in view, to gather up these ideas and all accessible material, and to make it public.

Mr. A. W. Campbell said that the organization could be a great help to other associations that had been mentioned, and that later on he expected that the league would extend a hand to the Good Roads Association. He would like to see the association not only work in the the city, but in the smaller towns as well. He believed that on account of the results the Good Roads Association had attained he would before long be able to invite the city people to the country to show them good roads and handsome boulevards. There was no reason for jealousy in the formation of the association. There was plenty of work to be done.



FIG 254. AN IMPROVED CITY BACK YARD.

Mr. R. Tasker Steele, President of the Civic Improvement Society at Hamilton, gave an interesting account of the work which had been accomplished at Hamilton in co-operation with the Hamilton Horticultural Society. The work had been inaugurated in Hamilton about four years ago, and already much had been done toward beautifying the city. Not much money was needed to promote their objects, for the work was done principally by creating public sentiment in favor of certain improvements, and thus stimulating the municipal authorities to undertake the work. Such work, whether inspired by a civic improvement society, a horticultural society, or a society club, makes better citizens, raises the moral tone of a town, and eventually results in enhancing the values of real estate. In Hamilton they had succeeded in having many improvements, such as alleyways better looked after, streets more systematically cleaned, vacant lots cleared up and made more sightly, waste paper barrels distributed and collected, wire baskets for waste set about in the parks, and generally they had stirred up a general interest in all measures

conducive to both sanitation and civic beauty. He outlined many lines of work which might well be undertaken, such as the planting of shrubbery and vines along the vacant sides of factory buildings, the removal of the ugly bill boards from places where they obstructed attractive views, the improvement of our cemeteries, and the stimulating of the members of church and school boards to the decoration of their premises, which are in many cases sadly neglected. He advised that no society undertake too many things at once, but rather to address themselves to one object at a time, and having accomplished that to undertake another. It was not, in Mr. Steele's opinion, at all necessary to have a large club or society to do this work. In Hamilton the working committee consisted of only about eight or ten men, but they were well chosen, and they were busy men too—lawyers, doctors, clergymen and business men—but these men always found time to attend a meeting when called.

Some discussion took place as to whether this society should become a branch of the

American League, and it was unanimously decided that it should be entirely separate and be known as The Canadian League of Civic Art, and that it should endeavor to extend its influence from the Atlantic to the Pacific.

The committee appointed to draft a constitution also nominated a list of officers, and their report was adopted, the list being as follows:

Honorary President, the Countess of Minto; President, J. D. Hayden, Cobourg; First Vice-President, Major R. Y. Ellis, Toronto; Second Vice-President, R. Tasker Steele, Hamilton; Third Vice-President, W. E. Smallfield, Renfrew; Secretary-Treasurer, Major H. J. Snelgrove, Cobourg; Directors, Messrs. G. R. Pattullo, of Woodstock; J. P. Hynes, of Toronto; W. D. A. Ross, of Chatham; C. C. James, of Toronto; T. H. Race, of Mitchell; G. A. Reid, of Toronto; Dr. James Fletcher, of Ottawa; L. Woolverton, of Grimsby; Judge Klein, of

Walkerton; H. F. Duck, of Toronto; R. W. Rennie, of London; M. A. James, of Bowmanville.

In the evening Mr. E. G. Routzahn delivered a most interesting address descriptive of a quickly moving series of pictures which were thrown on a screen in the council room. The first illustrations emphasized the complexity of city problems, and how New York and Chicago are working on plans much the same as those suggested by the Civic Art League and kindred societies of Toronto. The speaker then showed some successful attempts to improve houses and streets both in villages and cities, the general effect of a campaign for civic improvement, the result of campaigns against billboards, overhead wires, and against inactivity among rural councillors.

The lecturer was given the warm thanks of the meeting.

A CIVIC IMPROVEMENT DEPARTMENT

A LETTER FROM

T. H. RACE,

SECRETARY OF MITCHELL HORTICULTURAL SOCIETY.

WHY should we not proceed at once to have a department in our own monthly magazine opened under this heading? The aim of our Association is, more than ever before, to extend its usefulness and popularity by making it cover as much ground as possible with the means we have at our disposal. The Horticulturist is covering more ground to-day, and covering it better than it ever did, and is growing in popularity accordingly. It has now over five thousand monthly readers, and hundreds of them have borne testimony to the improvements in its

general character during the past year, and to its increased value both to the fruit grower and to the lover of flowers. Nearly one-half of its pages for the past few months have been devoted to gardening and floriculture, and it has been the intention to add a household and domestic science department just as soon as the means at hand would admit of another enlargement. When that enlargement comes, embracing a department devoted to fruit growing and the fruit interests generally; another to horticulture and civic improvement; a third to household and domestic science, and a fourth

to general matters, we will have a magazine that will compete with any of its kind published on the other side of the border line.

It was my privilege on the 13th of February to attend a meeting in the Board of Trade building, Toronto, called for the purpose of organizing a branch of the American Civic Improvement League. From the language of the circular sent out calling that meeting, I was somewhat curious to know what attitude the proposed organization intended to assume toward our horticultural societies and the excellent work they are doing throughout the province. I was pleased to meet there a considerable number of horticultural workers, who like myself were ready to co-operate with any organization whose aim and purpose was the purifying and beautifying of the cities, towns and rural homes of this land of ours, but who, like myself, were in a maze of curiosity for the same reason referred to above. The atmosphere was soon cleared, however, by a very general repudiation of the language of the circular in question, and this at once opened the way to a happy blending and natural co-operation of the apparently threatening elements. The meeting proved one of mutual profit, and the illustrated lecture in the evening a great stimulus to every worker along the line of civic improvement, and I hope the *Horticulturist* will give the new organization—more fully referred to elsewhere in this number—all the support and encouragement that its aims and objects deserve.

But because of the new organization we should not relax our efforts in connection with our horticultural work now being done by our affiliated horticultural societies. They have been doing the very work mapped out by the new organization for years, and are doing it better to-day than it has ever been done before. They are in fact doing a

greater work than is mapped out by the new organization, for they are reaching out into the rural districts and touching the farm home as well as the towns and cities. Under the auspices of the Minister of Agriculture, and the able and energetic management of our secretary, Mr. G. C. Creelman, they promise this year and onward to do better and greater work than they have yet done, and at best the new organization can only be a helpful auxiliary, whose field will be principally confined to the cities and larger towns.

In response to the lesson of the annual meeting at Cobourg over a year ago, a great push forward was made by our secretary last year in dividing the meeting at Walkerton into two departments, and the horticultural department proved the greater attraction of the two. This further lesson has suggested the advisability of a special horticultural meeting in Toronto next fall, after the proposed annual meeting at Leamington, to which representatives from all our affiliated societies will be invited; and now I would suggest, representatives also from the Civic Improvement Leagues. This, however, is a matter of more mature consideration and one which may safely be left in the hands of our energetic secretary and manager. In the meantime our only course and plain duty is to push our work ahead, and I think the Minister of Agriculture on the one hand and our affiliated societies on the other will sustain our secretary in going on with the work he took in charge only so short a time ago, and which has made such gratifying progress under his management. With the new Civic Improvement League as a helpful auxiliary, our societies should go into the splendid work they have been doing in the past with greater vigor than ever.



FIG. 2555. AN IMPROVED VILLAGE SCHOOL.

POINTERS FOR OUR SOCIETIES

BY

MISS JESSIE M. GOOD,

SPRINGFIELD, OHIO, IN THE "HOW OF IMPROVEMENT WORK."

THE needs of communities differ so widely that each association must decide for itself that which the town most lacks to make it beautiful and healthful, and supply what is lacking, no matter whether it is window gardens or water-works.

STREET TREES.

If your town is bleak and unshaded, plant trees, but give thought to what and how you plant. Because you love elms, you certainly show a selfish affection when you plant them twenty feet apart upon a paved street sixty feet wide, knowing, as you must if you love them, that the elm is one of the trees that needs great space and moisture for its

full development. Few shade trees should be planted closer together than from twenty-five to thirty-five feet. Why not intersperse them with some ornamental flowering trees, red buds, dog woods, crab apples, catalpas, etc.? Why always plant forest trees for city shade? Why not plant fruit trees? I see you smiling, but in Erie, Pa., I know that years ago Parade street was shaded for many squares by cherry trees that were a perennial delight, beautiful in their neat, compact growth and glossy foliage, and a joy when in blossom and fruitage. But did not the boys steal the fruit, you ask? The loss was not material. Boys who have all the ripe cherries they want at home will not

steal cherries away from home. They will hunt for green apples.

SIDEWALKS.

If it is sidewalks you most need, create such a strong public sentiment in their favor that those reticent old taxpayers who always protest against everything but a reduction of taxes will not dare fight against the improvement. But do not think when you have laid new sidewalks and planted your trees that your work is finished. It is but begun.

BACK YARDS.

What is the condition of your back yard and alley? Is the latter an impassable mire in winter and a weedy lane in summer, or is it a well-graded, rolled and drained passage way? Is your back yard green with grass and gay with flowers, making it a beautiful and wholesome place in which your children may play? Or, is it a death-trap, adorned with a fragrant swill barrel, heaps of ashes and garbage, piles of old boards, an untidy fence, while the bare ground is soaked with greasy dishwater, making it a place abhorrent to your children as a playground, and as unsafe from a sanitary point of view as a sewer? If you have such a back yard can wonder why Johnny and Willie prefer to play in the street instead of the yard? I think their preference for the street shows proper instinct and good judgment.

Does your grocer and fruiterer expose the foods he expects you to eat to the dusty contagion of the street? If so, you should teach him that you never offer such contaminated foods to your family. If an organization of influential housekeepers speaks clearly upon this point, glass-covered boxes will be quickly provided that will show the goods quite as well.

FOOD SUPPLY.

How about your dairy supply? In a cer-

tain town a shocking infant mortality was traced to the milk. A body of indignant women making a protest against an incompetent dairy inspector was told by the politician, of whom the inspector was a protege, that they were going outside their sphere when meddling in politics. He was quickly answered that "women's sphere was not only outside the home but inside the baby." A weekly or fortnightly visit by a committee from an improvement association would have a deal to do with wholesome dairy premises. No educated woman of this age dares to be indifferent as to the source of the food with which she supplies her family. Beauty and health are synonymous terms—you cannot have one without the other.

THE VILLAGE SCHOOL.

This little temple of learning is a model one for a village school. It is fifty feet by sixty in size. The two rooms on one side and the large one on the other have sliding partitions which permit them to be thrown into one large hall for lecture or concert. There are cases full of books, pictures of great men, and a few good water colors on the wall. In the yard are trees, flower beds and swings. It is a pity that spring blooming shrubbery and bulbs are not more generally planted about school houses. Lilacs, snowballs, syringas, deutzias, weigelas, etc., if planted along the wall will take but little space, serve as a background for the flower beds, and fill the school room with fragrance. On Arbor Day why always plant forest trees? Why not plant a cherry tree that will ripen its fruit before school closes, or an apple tree for fall ripening? Why not nut trees? The training in honor and self restrain required in waiting until fruit or nuts are ripe is a finer lesson than can be obtained from text books. Fruit and nut trees give wider opportunities for nature study, as well as for pretty school festivals when the fruit and nuts are ripe.

BEAUTIFICATION OF WASTE PLACES

BY

S. M. MEEHAN,

EDITOR FLORAL LIFE, GERMANTOWN, PHILADELPHIA.

IT is my intention to at once dispel any impression you may have that I am going into the mysteries of landscape gardening, to name a lot of rules you should follow, and give other specific advice, or that I intend naming lists of desirable plants, describing their merits. Such things are details that should be worked out to fit the individual needs. But rather I wish to reveal some common opportunities by which we may brighten our lives through the medium of Dame Nature and as students of ornamental plant life.

There is no question but that all country and suburban places have their waste places, waste because they have either had all the beauty crowded out of them or have been utterly neglected.

LOVELY SURROUNDINGS.

A dwelling place should be made a home in every sense of the word. The grounds immediately surrounding the house and beyond should be made attractive and lovely to those who live right on the spot. But then we must think of others too. We want to please our visitors, friends and neighbors, and in fact every one that passes by. It is rightly a matter for personal pride that our surroundings be made to speak our appreciation for the beauties of nature. Therefore shall we be careful to view whatever plans we may make from the two points.

Have you ever stopped to consider how badly proportioned our average country places are, having in mind those where farming, fruit growing or similar rural work is carried on? Fortunate indeed is the 50 or 100 acre place that has half an acre of home

grounds about the house. Even there the chickens and other animals are frequently allowed to hold possession to the destruction of any pretty gardening plans.

In comparison with the owner of city property, what a much better opportunity has the countryman and fruit grower with an abundance of low-priced land to have a beautiful garden home with a little expense and accompanied by greater personal interest.

LAWN AND FLOWER GARDEN.

But few country homes exist where from one to five acres could not be set aside for lawn and flower gardens. "It would not pay," I hear some one say. Perhaps the balance in dollars and cents would be a little less, but is the pleasure and comfort to count for nothing? If the financial results are to be considered above everything else, and the loss of that much ground is serious, then the owner must be working the remainder of his property on very close margin, and his methods need investigating.

A good expanse of lawn may be considered one of the chief aims, because when that is set apart it offers many opportunities for development in detail and striking effects. Above all, set out with the determination it is to be a good lawn of good grass. To be half-hearted in home-making is to create waste places, and those we have no use for.

Decide to have, if possible, a flower garden, not simply flower beds and borders around the grounds, but something of an enclosure into which one may pass and feel that he is in a different atmosphere—where flowers are on every side inviting admira-

tion and interest. I know of no phase of gardening that is more delightful, invigorating and care-destroying than that which relates to hardy flowers.

A carefully selected assortment gives a profusion of flowers all the year, from the very earliest spring days, when some will open their adventurous blossoms almost from out of the snow, to the time when some will defy the lighter frosts of autumn.

A ROSE GARDEN.

A rose garden, which may be made a section of a general flower garden, is much more pleasing than where the roses are simply scattered here and there. They are not fitted for promiscuous planting, and always respond better to definite treatment.

If a fine lawn offers opportunities for detailed development, equally so does the flower garden. There may be bowers, turf walks and rustic seats, trellises, vine covered archways and what not. Utility need not be dismissed entirely, for some of the handsomest flower gardens are merely generous borders to vegetable patches. Or where the owner is concerned in marketing, cut flowers offer opportunities for quite a neat recompense for labor and expenditures.

Would not this idea also add to the various proffered solutions of the farm question, How shall we keep the boys on the farm?

Having determined to beautify our home grounds, to have fine lawns well planted, a flower garden and handsome shade and ornamental trees, what is the best course to pursue in securing them.

PLANTING PLAN NEEDED.

Right here let me say that unless the ideas are well thought out and right plans laid, it would be most unsatisfactory to do anything unusual. To plant ground for ornamental effect and permanency requires just as much and more care and intelligent judgment as

to plan out a large fruit orchard or piece of farm land. A good knowledge of plants and their characters must be had. The effect they will produce in position both at the start and in the future must be recognized.

The smallest place should have a plan made of it; put roughly on paper, or kept well in the head if not intricate—the former method is much the most satisfactory. Make this plan complete as possible. Allow for every little embellishment, though the minor details may be subject to change when the work is taken up.

The economy of a plan is in its perfection. Mistakes are not so likely to occur, and everything is located in harmony. Above all, such a plan can be carried out one part at a time without danger of having something interfere with some idea that might otherwise have presented itself at a future time. The lawn could be started the first year, and a few trees planted as desired about the house and at the driveway entrance, with perhaps sufficient properly grouped in intermediate positions to relieve any bareness that might exist. The next season shrubbery borders and groups might be planted with additional trees on the lawn for ornamental purposes. The flower garden need not follow till later. Meanwhile, the pleasure accompanying development would be going on with always some little thing to look forward to.

EXPERT ADVICE.

If you have the time to study all these things out properly it will be a source of satisfaction and pleasure, and you have but to show the completed scheme to some one competent to criticise it. If you have not that time, it will be to your profit to spend a few dollars on expert advice.

Plant trees and shrubs that have permanent value and not too ordinary. Avoid the cheap, quick-growing trees, which are invariably less satisfactory in the end and are

short-lived. I will only name the oaks as being especially worthy trees, and ones that will never bring regret. A few really rare plants will increase the interest in your place wonderfully. Such beautiful things as the yellow wood, ginkgo, Sophora, and Japanese varnish tree are not difficult to obtain, yet they are not common.

VINES.

This paper has dealt with waste places in a rather broad sense. There are many little places that would seem to come more strictly under that heading that I have not mentioned. There may be an old stump of a tree which would be beautified if a vine were allowed to clamber over it. An unusual piece of swampy ground could be made beautiful by planting in it some flags and Japanese iris, mallows, coreopsis, and

even many swamp-loving shrubs like the common elderberry, white fringe and swamp magnolia.

The walls of your house would likely be very much improved by a clinging vine. The fence along the front of your property could have a few vines placed at some of the posts. Many similar places will suggest themselves to you when you give it thought, and it is unnecessary for me to attempt further detail. My greatest fear is that we men of business allow waste places to locate in our minds. We think of utility, what we can plant here for profit and there for profit. Everything must pay in dollars and cents. These waste places I hope my hearers will plant up at once with thoughts of the beauties of nature. All else that I have suggested will then be carried out in natural course.

KINCARDINE

EXTRACT FROM SECRETARY BARKER'S ANNUAL REPORT—AFFILIATION PAYS.

YOUR Secretary regards our affiliation with The Ontario Fruit Growers' Association as of so much importance and advantage to the Horticultural Societies of Ontario that it would indicate unpardonable ingratitude on our part were we to omit a special reference to that most useful organization which year after year takes us into its confidence and sends experienced instructors to teach the improved methods of beautifying our homes as well also useful lessons on horticulture and floriculture, the benefit of which cannot be estimated from a monetary standpoint. We feel sure that the visits made to us by the Ontario Fruit Growers' Association during the six years

of our existence as a society cannot but be remembered with a great deal of pleasure. Who amongst us does not frequently call to mind the pleasing instructions we received from them all, and especially from Mesdames Rose and Maddock, of the Royal City of Guelph, and from Miss Torrance, of Chatauguay, Quebec. The last named lady visited us in the spring of 1902, accompanied by Rev. E. B. Stevenson, of Jordan Station, recognized as one of the leading Canadian authorities on that most delicious fruit, the strawberry, and its culture. That gentleman's address on how to grow large strawberries and how to successfully treat the bulbs of the hyacinth so as to ensure a profusion of bloom all through the winter sea-

son, when other blooms are so scarce, will, we are sure, be long remembered by many of us, and doubtless some amongst us are endeavoring to profit by the instruction given by that gentleman.

The following trees and plants have been

distributed to the members during the year:

Fruit trees, 246; grape vines, 49; strawberry plants, 3,375; black raspberry, 100; dewberry, 10; flowers, plants, etc., 5,016; pea trees, 10.

THE WAY TO THE BACK DOOR

THE accompanying illustration shows a commendable way in which the landscape gardener arranges the path leading from the street to the back door. It is a situation very commonly met with. The premises are not large, the front of the house and expanse of lawn is to the right, and this walk was made for the grocer, butcher, and so forth. Where it is given a short turn the shrubbery is thickened so that the back yard is effectually screened. The walk is made a little wider in front than back, causing an impression of greater depth than really exists. It is a success, so radically different from what is usually made shift with in our city residences. The trouble is, such a result requires five years' time to bring forth. While people neglect their places entirely for many years, when they do order it properly arranged they want it complete immediately. Such plantings of shrubbery should be embellished with numerous clumps of perennials. Those to the right, fronting on the open lawn, can be almost any you may desire, according to the requirements of color, size, season of bloom and so forth, but those along the edges of the walk must be shade enduring, such as columbine, trilliums, violets, hemerocallis and so forth.—*American Florist*.



FIG. 2556. THE WAY TO THE BACK DOOR.

SPRING NOTES FOR LAWN, FLOWER GARDEN AND WINDOW.

BORDER PLANTS—WINDOW PLANTS—FLOWERING
BULBS—ANNUALS—SEEDS FOR BORDER PLANTING.

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH.

THE mild, sloppy weather we are experiencing at the present date (Feb. 11th) bids fair to denude plant life entirely of its protective blanket of snow. Premature and partial spring weather is very trying and often fatal to plant life. Divested of their warm winter covering of snow, exposed oftentimes to sharp frost at night and bright sunshine in the day time, producing alternate periods of freezing and thawing, with intervals of cold parching winds, these conditions prove more fatal to plant life than when more severe weather prevails and the plants are still covered in their protective mantle of snow.

It is in these prematurely early spring seasons that the plant lover must take more than ordinary precautions with plants or shrubs of questionable hardiness on the lawn or in the garden. Tender rose bushes, or shrubs that have perhaps been unprotected during the winter except for their covering of snow, will benefit very much by having some protective material such as a light covering of long straw or strawy manure, or even a few fresh pine or cedar boughs placed so as to shield them at least partially from the parching wind and sun, that are more to be dreaded really than the frost.

BORDER PLANTS.

Border plants, such as biennial Campanulas, Hollyhocks, perennial Phlox, Polyanthus Primrose, and even violets, will be greatly

benefitted by a slight covering of some light protective material, if weather conditions exist in early March such as I have described. Premature spring weather often means a premature death of tender plant life, unless protective measures are taken in



FIG. 2557. NARCISSUS, VON SION.



FIG. 2558. *BEGONIA MANICATA AUREA*.

time. Even then it is difficult to pull them through the changeable weather often experienced in late winter and early spring.

BORDERS.

BULB BEDS OR BORDERS.—Beds or even clumps of bulbs in borders that have been protected during winter are oftentimes uncovered too hastily in early spring. Take the winter covering from these by degrees as warmer weather approaches. Examine the beds or borders about the end of March or early in April. If the frost is out of the covering, remove the wettest and most rotten part of the covering, replacing the drier portion of the covering and allow it to remain until more settled and warmer spring weather prevails, when it can be taken away altogether. This method of uncovering protected plants will apply

equally to all winter protected shrubs and plants. Never expose suddenly and entirely any tender plant or bulb, to the uncertain weather conditions of late winter or early spring. Always remove the covering from winter protected plants in dull showery weather if possible, as the bright sunshine is often as hurtful to tender plant growth in early spring as frosts.

WINDOW PLANTS.

FLOWERING BULBS.—Pots of any of these, such as Narcissus, Tulips and Hyacinths, should have a plentiful supply of water after they are well started into growth or when in flower. When the flowers have faded do not withhold water entirely from the plants, more especially the various kinds of Narcissus and Tulips. When the flowers of these begin to look shabby stand the pots a little in the background, where they can still have some light and perhaps a little sunshine, and dry the soil up gradually in the pots. Possibly the foliage will keep fresh for a week or two. When it shows signs of decay give the plant less and less water until the foliage has become quite yellow. In early spring plant the bulbs out in the open border as soon as the ground is in proper condition. Place a good sized stake to mark the spot where they are planted, and do not disturb them when digging the border. It may be two years before you get much bloom from them, but if they are left undisturbed they generally give good and constant results year after year when once they become established. Bulbs forced into flower early in the season in pots are of very little if any use for pot culture the second season. Most varieties of the Narcissi naturalize well when planted in the open ground, and are quite hardy.

FREESIAS.—These should not be dried off hastily. Give them water less frequently after they are out of flower, until the foliage is quite yellow, when no more water should



FIG. 2559. TALL BRANCHING CINERARIA.

be given them. Keep them dry until next season in the pots.

BEGONIAS.—Two of the very best varieties of these for window culture are *Begonia Manicata Aurea* and *Begonia Paul Bruant*. The first named of these makes a most attractive and lasting window plant. (Fig. 2558.) Its beautiful large leaves of pale glossy green, blotched and mottled with spots of a pale gold color, will of themselves entitle this plant to a place in the front ranks of this popular species of plants. But when its richly marked foliage is surmounted by its tall delicate racemes of pale pink flowers, it is indeed a plant of great beauty. I have known plants of this variety of *Begonia* kept and grown successfully in windows for several years without being removed, except for repotting or at house

cleaning time, and each year give a wealth of their delicate blossom at this season of the year, the foliage at all times being bright and attractive. *Begonia Paul Bruant* is another good window *Begonia*, but is not quite as robust or pretty a variety as *B. Manicata Aurea*. The plain leaved variety, *Begonia Manicata*, is also a good window variety, having almost as robust a habit, but is without the beautiful markings on its leaves. The leaves of both varieties of *B. Manicata* are of a thick leathery texture, a feature that makes them of so much value as house or window plants, being better able to resist the destructive influence that the dry atmosphere of a dwelling house usually has on this class of plant.

CINERARIAS.—Plants of these beautiful showy annuals are very subject to green fly



FIG. 2560. DWARF CINERARIA.

or aphid, more especially on the underneath side of the foliage. Tobacco water applied to the foliage infested with aphid is a good remedy, but is far more successful as a preventive, as these insects are very hard to dispose of on Cinerarias when they once get on the plants. By starting early in the season and applying regularly about once a week the tobacco solution so often recommended in these columns, the green fly can be kept from them. When the plants are

out of bloom throw them on the rubbish pile, as they are of no further use as decorative plants. Cinerarias are not profitable window plants, and are uncertain and fickle plants to grow, but as greenhouse plants they are very showy. (The accompanying cuts show both the tall and dwarf type of these plants.)

TUBEROUS BEGONIAS.—The tubers of these summer flowering Begonias can now be started into growth. As a rule it is best to

start them in sand only. Fill a pot or a shallow box with fine sharp sand, place the bulb in the sand so that the top of the bulb or tuber is just under the surface of the sand. Water so as to moisten all the sand. Keep the sand moist, but not soddened. A temperature of 60 to 65 degrees will suit these Begonias to start in. In about two or three weeks the bulbs will require potting, or as soon as the roots are an inch in length. A five or six inch pot will usually suit an ordinary sized bulb, as these should average about an inch or perhaps two inches in diameter. The latter sized tuber would require a seven inch pot. Use plenty of drainage, and a fairly rich loamy soil, in which there has been mixed a small quantity of sand. Water well once after planting, then give water sparingly until the plants are well established. The tuber should be just under the soil when potted, as recommended in starting them. I prefer potting them into large sized pots at first, to repotting them as required into larger pots, as they



FIG 2561. TUBEROUS BEGONIA—SUTTON'S QUEEN OF THE WHITE.

are tender and difficult to repot sometimes. Place an inch of broken pot at the bottom of the pot for drainage.

SEEDS FOR BORDERS.

BORDER FLOWER SEEDS. — Sweet Peas, Zinnia, Mignonette, Antirrhinum, Sweet William, Aquilegia, Dianthus, Marguerite Carnation and Gaillardia, as well as the annual Wallflowers, are amongst the varieties of flower seeds that should be sown as early as possible in the open ground. No flower garden should be without the last named variety of these sweet-scented English flowers that are such favorites with every one that loves a delicately perfumed and easily grown flower. The annual type of

these plants is very similar to the perennial type, except that the plants are not as strong growing and the flowers not quite as large, but their long and continuous habit of flowering and their delicious perfume make them indispensable in a collection of garden flowers. I picked large handfuls of these as late as November 10th, after most all of the border flowers were spoiled by early frosts. If sown early in April in a pot in the window and transplanted in the border early in May, they can be had in flower in July. The other varieties mentioned (except the Sweet Pea and possibly the Mignonette), as well as other kinds of annuals and perennials, can be sown indoors in pots or boxes for transplanting outside, so as to secure early flowering results.

Question Drawer

SCAB IN POTATOES.

SIR,—Will the mixture of lime, sulphur and salt cure scab in potatoes.

JAMES WALKER, Fairville, N.B.

For scab in potatoes I have found copper sulphate solution an excellent remedy. It is useful both for treating the seed previous to planting and for spraying the growing plants to prevent rust, etc. Lime, sulphur and salt, or lime and sulphur without salt, is not suitable for foliage in any case. Used at one-third of what we consider normal strength it will defoliate peach trees very quickly. Other fruit trees are slightly more resistive.

G. E. FISHER, Burlington.

WHALE OIL SOAP.

SIR,—Where can Whale Oil Soap be purchased, and what is the usual price for it in 2,000 lb. lots? Is there any simple way of testing quality?

Queenstown.

WM. BURGESS.

I know of no firm in Canada making Whale Oil Soap. David Morton & Sons, of Hamilton, made our last year's supply, and delivered it at four cents per lb.

They do not keep the necessary material on hand, and do not make it except in large lots. Morton's soap was the best we have used.

G. E. FISHER, Freeman.

STICKY BANDAGE.

SIR,—Is the mixture of resin and castor oil applied to the bark of the trunks of the trees?

Fairville, N. B.

JAMES WALKER.

In using the sticky bandage (castor oil and resin) the trees should be very carefully scraped at any convenient height—that is, a strip six or eight inches wide around the trunk—and the mixture applied with a brush, making a sticky bandage about two inches wide right on the bark. These two inches will soon spread to four inches, and if the weather warms up it will spread more. The first treatment will be absorbed by the bark and must be repeated. The second application will remain sticky a long time.

G. E. FISHER, Burlington.

THE VEGETABLE GARDEN

MANURE HOT BEDS.

THE construction and management of hot-beds is an exceedingly simple matter, and yet it requires careful attention to keep plants growing in a healthy condition. Manure beds are most commonly used, horse manure being preferable to any other ready available substance. Fresh manure recently removed from the stable is the best, but if collected in too small quantities, it should be frequently spread through the winter in order to keep it from heating and spoiling before spring. If a good proportion of fine straw or forest leaves are used in the bedding it improves the manure greatly for hot-bed purposes.

When ready to begin operations the manure should be forked over, shaken out finely and *thrown into a high conical heap to heat*; if anyways dry it should be watered until well dampened throughout the heap. Leave it standing in this heap about a week and it will surely heat and begin smoking like a small volcano.

There are two methods of forming the bed, some digging a pit and sinking the manure in it, and others simply building the manure up into a square bed and setting the

so we will let labor *vs.* manure decide which you shall adopt.

Fig. 2563 shows a perspective view of a bed constructed on the manure without a pit. If the manure is fine, and contains little or no long straw, it will be found necessary to put a plank frame around it to keep it in position. After levelling the manure there should be three or four narrow boards laid across it on which to rest the hot-bed frame, so that after the manure heats all will settle together, otherwise the weight of the frame and sash will force it down into the manure, and the centre of the bed will appear to raise and perhaps displace the plants.

Of course you should select a spot for the bed which is sheltered as much as possible on the north and west by some building or high board fence. The sash should slope gently towards the south or east, both in order to carry off the rain water readily and to catch the sun's rays and gain light and warmth.

The most common sashes are 3 x 6 feet. The frame should therefore be made six feet wide and as long as necessary to accommodate the number of sashes to be used.

A vital point always to be observed in making a hot-bed is *to spread the manure down while hot*, it then continues to heat, but if spread down cold it will heat very slowly or unevenly or perhaps not at all. Early in spring, when considerable cold weather may yet be expected, it will be necessary to use about a common wagon box full of manure to each sash, but later in the season, when forming beds in which to transplant seedlings, one-half that quantity will suffice.

The soil to be used should be prepared in advance. It must be light, loose and rich.

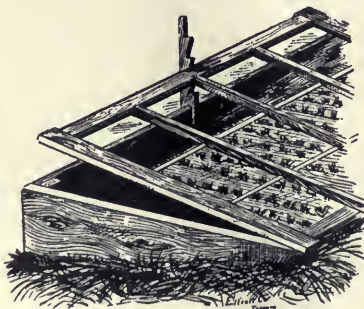


FIG. 2562. COLD FRAME.

frame on it; the first named method requires the most labor, the second the most manure,

Good sod placed in a heap with alternate layers of cow manure and allowed to stand and decay for about one year, makes a fine compost for starting a hot-bed. In removing the soil from an old hot-bed, shovel out some of the fermented manure with it each year, this will keep it loose and in good mechanical condition. The poorest article I ever saw used in a hot-bed was sand washed

ger of running up spindling, transplant again.

In transplanting tomato plants, the stem should be set down well into the soil, and will take root wherever covered. The object sought is plenty of fibrous roots on a short stocky stem. The temperature of the beds must be closely watched, though it may vary considerably. The mercury may run

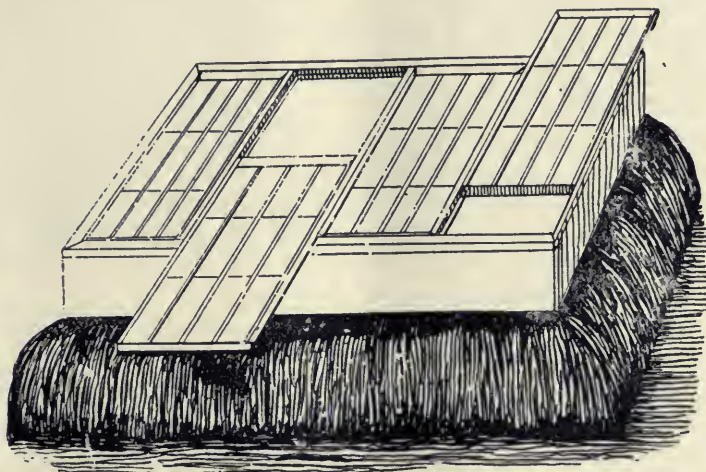


FIG. 2563. HOT BED.

from the road, which it was thought would be rich and nice, but it packed down so hard that the whole bed was a failure.

Soil should be placed on the manure to a depth of from four to six inches, and the glasses adjusted properly. After the soil becomes warm, sow the seed in rows about four inches apart and scatter them quite thickly in the rows. Never sow broadcast, as the labor of keeping free from weeds is much greater. When the seedlings are about three inches high, they should be transplanted into rows, 3 x 6 inches, and as soon as these need more room, or are in dan-

ger from 50 to 80 degrees, though the mean, 65 degrees, should be as closely kept as possible for tomatoes, pepper, etc. Cabbage and cauliflower plants require much less heat, and should never be placed in the same bed with tomatoes. In fact, very little or no bottom heat is required to produce good early cabbage plants. Fit a frame, as for a hot-bed, except to omit the manure for bottom heat, cover it with sash, and sow the bed early in March, and better plants will usually result than if bottom heat is used. (See Fig. 2562).—*Tillinghast Manual*.

GINSENG CULTURE.

SIR,—Please give me full information on Ginseng Culture.

Queenstown.

W. B.

To give detailed instruction would take much time and space. We would, therefore,

refer our correspondent to a small book entitled "Ginseng", by M. G. Kains, published by the Orange Judd Co., New York City; or to the Dept. of Agriculture, Washington, D. C., for the Farmers' Bulletin on this subject.

TOMATO GROWERS

A MEETING AT HAMILTON—ADVANCE PRICES DEMANDED.

A MEETING of tomato growers of Wentworth county was held at the Dominion hotel Saturday for the purpose of considering what steps it would be advisable to take to get better prices from canners for tomatoes grown this summer than were paid last fall. There was an exceptionally good attendance, nearly 100 tillers of the soil being present. It took them a long time to get down to business, there being no person anxious to accept the responsibility of setting the wheels in motion, but when they did get started they transacted a large volume of business in a remarkably short space of time.

The first question discussed was whether or not it would be advisable to form a Tomato Growers' Association, and recognising the fact that in union there was strength, it did not take long to decide in the affirmative. The association starts out with about 75 members, and the officers expect that this number will be doubled when the farmers generally understand what the aims and objects of the association are. As an evidence of good faith, those who joined on Saturday deposited 25 cents each with the secretary. The election of officers was next proceeded with. R. H. Lewis, of Bartonville, was the unanimous choice for president, and E. J. Mahoney was elected secretary.

Having completed their organization the tomato growers started in to discuss other matters, the first of which was the price to be demanded for tomatoes next fall. Last fall the canners paid only 20 cents a bushel for tomatoes, and it was agreed that this figure was far too low. Some thought 30 cents a bushel should be the minimum. Others wanted to split the difference by setting the price at 25 cents a bushel. After

much discussion it was decided to allow every grower to make the best bargain he could with the canners, but every member of the association affixed his signature to an agreement not to accept less than 25 cents a bushel. If the canners will not contract for tomatoes at this price, there will be few of them grown this fall, as the farmers are very much in earnest in their demands. They have little fear of outside competition, as the freight rates are sufficiently high to protect them, and as they consider that their grievance is a just one they intend to fight to a finish.

The growers have another grievance against the canners, which they intend to have settled before setting out their plants this spring. The contracts which they have been asked and practically compelled to sign in former years contained an objectionable clause. It gave the canners the privilege of saying when the tomatoes were to be delivered. Frequently they were not prepared to accept delivery when the tomatoes were ripe, and the growers had no alternative but to let them rot on the ground. Later the canners would compel them to deliver the quantity contracted for. This clause of the contract will have to be struck out or modified. The growers will insist on being allowed to deliver their goods when they are ready.

Some of the canners had a talk with the officers of the Growers' Association after the meeting, and signified their willingness to comply with the demands of the association. The officers of the two associations will probably meet in the near future to talk the matter over, and to draw up a new form of contract.

WINTER AND SPRING CULTURE OF ASPARAGUS.

C. L. ALLEN, NEW YORK.

THE asparagus bed is quite apt to be neglected at this season, or the care required to keep it to a high state of productiveness overlooked. Before the first of December the tops should be cut and the bed or field cleared of weeds. It is highly important that all the seed should be taken off, as the greatest enemy the asparagus has, in the way of weeds, is asparagus, and it is almost impossible to get clear of superfluous plants when once established. When this work is finished, cover the bed to the depth of three inches with coarse manure, which will not only enrich the soil, but will keep out the frost, which is highly essential. Like all other siliceous plants, the asparagus is making preparations in winter for its spring work. This it cannot do if the soil is frozen. In climates where freezing and thawing alternate in rapid succession, the buds will be greatly benefited if covered sufficiently deep with leaves or seaweed, on top of the manure, so that it will be impossible for the frost to reach the crown of the plants. The first work in spring should be to remove all the covering except the fine manure, which should be carefully forked in so that the crowns will not be injured by

the tines of the fork. While the asparagus is, apparently, a hardy plant, and one almost impossible to exterminate, there is no plant that resents injury so quickly, as will be seen by the difference in the size and number of edible shoots it will send up. Forking the beds should not be neglected, as the early admission of the sun and rain into the ground induces the plants to throw up shoots of superior size. Another step in the right direction is to keep the ground entirely free from weeds the entire season, as these take from the plants the strength required for their own growth, and the asparagus needs it all.

Although there is a difference of opinion as to the benefit of salt on asparagus, most of the best growers on Long Island cover their beds with salt as soon as the ground is cleared and the manure forked in in the spring, to a depth of half an inch in some cases. Although that much may not be required, it certainly does no harm, but an application of salt so that the ground appears as if covered with snow is considered by many an absolute necessity if best results are to be expected.

GARDEN PEAS.

TWO years ago I recommended the Gradus Pea as the best early garden pea that I had ever grown. I am still of the same mind, but some of my friends have written that they have tried the Gradus and been disappointed. They must have been misled by the catalogues. Some of the lat-

ter offer the Gradus or Prosperity. I have tried that. It is not the genuine Gradus. I got my genuine stock lately from John A. Bruce & Co., Hamilton, but had it direct from a friend in England before it was offered for sale in Canada.

Mitchell.

T. H. RACE.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

THE INDEX for this Journal for 1902 is now ready, and may be had from the secretary on application; to whom, also, orders for binding the Journal should be addressed. We have a fine stamp for the back and sides, which may be finished in black or in gold.

THE SPIRAEA ANTHONY WATERER, which was distributed among our subscribers, would bloom more freely in late summer if cut down closely in the spring. The bushes will be more compact and more attractive. Many other summer flowering shrubs would be better of similar treatment.

GIDEON MEMORIAL.—At their December meeting the Minnesota Horticultural Society called for subscriptions toward a memorial to the late Peter Gideon, the originator of the Wealthy apple. One novel method adopted was the building of a large pyramid of Wealthy apples on a table in the hall, which were sold to the members at \$1.00 a piece.

THE LATE MRS. JOHN COWAN.—On the morning of the 23rd of January, at Montreal, there passed away, at the age of 86, one to whom the readers of this Journal are indebted for many poetical contributions on Garden lore, signed "Grandma Servan." She was a native of Edinburgh, Scotland, and came to Canada about the year 1858.

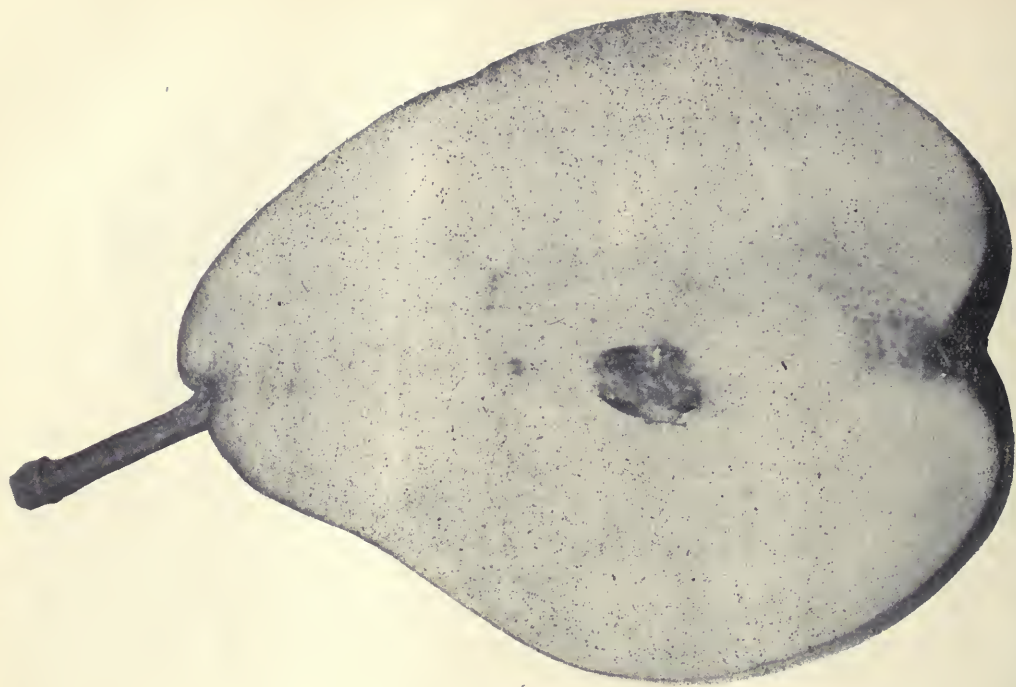


FIG. 2564. PITMASTON.



THE CANADIAN HORTICULTURIST

APRIL, 1903

VOLUME XXVI



NUMBER 4

PITMASTON

(PITMASTON DUCHESSE D'ANGOULEME)

THIS is a pear which has succeeded so well in our own orchard at Grimsby that we are anxious to see it tested in all parts of Ontario where dwarf pears will flourish.

ORIGIN: Raised by the late Mr. Williams, of Pitmaston, near Worcester, England, from crossing Duchesse d'Angouleme with Glout Morceau, and originally known as Pitmaston Duchesse d'Angouleme.

TREE: Vigorous, productive, and suited to pyramidal training.

FRUIT: Very large and handsome, sometimes $4\frac{1}{4}$ inches long by $2\frac{3}{4}$ inches wide; skin, smooth, fine; color, pale lemon, thickly covered with patches of delicate cinnamon colored russet; stem, one inch long, stout, and inserted either level or in a small narrow basin; calyx large and open, set in a wide cavity.

FLESH: Tender, melting, and very juicy; flavor, very rich, vinous, perfumed.

QUALITY: Very good.

VALUE: First-class for distant shipment.

SEASON: October and November.

REPORTS ON PITMASTON.

DR. ROBERT HOGG, Vice-President of the Royal Horticultural Society, London, England: "A very handsome pear of the finest quality; in use from October till the end of November. Fruit too large to be grown as a standard."

MR. R. D. BLACKMORE, of Teddington, England: "It is good, but not of the first quality; much better than Glout Morceau or Duchess, but worthless on a wall."

THE DWARF PEAR ORCHARD.

MR. WM. ARMSTRONG, Barrie, Ont., writes as follows:

SIR,—I am thinking about planting some dwarf pears, such as Bartlett, Duchess and Clapp's Favorite. What about the Dempsey? Also about some Japan plums, Red June or Burbank.

I have good strong clay soil, and rich. What would your choice be out of the above pears, and what would you advise me to plant. All for home markets.

In planting an orchard of dwarf pears for the home markets, one should seek to cover the season so as to keep up successive shipments.

The very earliest pear is the Doyenne d'Ete, a small but delicious dessert variety, the Seckel of its season, which is about the last of July.

The Chambers follows very closely, and is, in our opinion, most promising for profit. Some years ago we planted two trees in our experimental plot, and these have proved regular and abundant bearers. The fruit is of medium size, yellow, with a pretty shading of red, and the flesh sweet, tender, and of fair quality. So far we do not know that it has a place in Canadian pear orchards, for no one seems to be acquainted with it. It is of American origin, having been brought from Maryland to Kentucky by Judge Chambers, where it was counted very profitable as a market variety.

Then about the middle of August comes Giffard, a French pear of most agreeable flavor and white melting flesh. On our deep rich sandy loam at Maplehurst this pear grows much above medium size, and its markings of red on yellow ground make it a very attractive pear in the market basket. Mr. M. Pettit, of Winona, makes it one of his principal commercial varieties.

Clapp's Favorite follows toward the end of August. A large, beautiful pear, yellow, with rich markings of fawn and crimson, and excellent in quality, if gathered before it becomes mealy. It should not be omitted in planting for the home market.

Of the well known favorite, the Bartlett, we need scarcely speak. It comes next in order, covering the season from the end of August to the middle of September, and it is recognized as our leading market variety;

but it is a standard tree and does not succeed so well as a dwarf.

Louise follows in the end of September, a beautiful pear when grown in rich soil. It is large, pale green, with a brownish red cheek, and of very good quality. This and the Duchess, which is an October pear of very large size, greenish yellow in color, and of excellent quality, about complete the usual list of profitable dwarf pears for our Canadian markets.

Of late, however, our attention has been called to two exceptionally fine varieties of dwarf pears in our experimental plot at Grimsby, viz., Hoosic, a large beautiful yellow pear, of rich, aromatic flavor, and very good quality, ripening in October; and PITMASTON, which we show in our frontispiece, and which is described in report of our fruit stations for 1902. It is an English pear, raised at Pitmaston, England, where it was called Pitmaston Duchesse d'Angouleme, a name certainly clumsy enough to bring it ill favor, no matter how great its excellence. Its great size surprised us last autumn, and it appeared to us freer from knots and to grow more regular in form than the Duchess. The tree, too, is productive, and a fine vigorous grower. It is perhaps too soon yet for us to recommend this variety as superior to the Duchess for the dwarf pear orchard, but we are greatly pleased with it so far, and believe it would be one of our best export varieties. Possibly for our home markets its green color may count against it. It is later than the Duchess, keeping well into November.

Editorial Notes and Comments

HOW TO MAKE FRUIT GROWING PAY

ANOTHER successful house meeting of the Grimsby Horticultural Society was held on Saturday evening, February 28th, at the house of Mr. J. M. Metcalfe, and was well attended by both ladies and gentlemen.

Both village and country people were attracted, not only by the social character of the gathering, but also because the fruit growers were anxious to hear what a practical man like Mr. E. D. Smith, of Winona, M. P. for Wentworth, had to say on how to make their business pay; and because the village people were anxious to hear a paper on Roses by the Honorary President, Mrs. E. J. Palmer. Besides these subjects, excellent music on violin, 'cello and piano was contributed by the Misses Metcalfe and Mrs. J. M. Metcalfe.

These monthly meetings are so interesting that they are likely to be a regular feature in the future work of this society.

CHOICE OF VARIETIES.

IN his opening remarks Mr. Smith emphasized the great importance of kinds of fruit for profit. The time has passed when all apples bring the same price, or when it matters little about the season of a peach. We have new varieties of peaches to cover the season, and some of the newest varieties pay so much better than the old, that in some cases the latter are but an encumbrance of the ground. The Yellow St. John, for example, has not only filled a gap just in advance of the Early Crawford, but it is so good a variety that it is to-day one of the most profitable kinds to grow for Canadian markets.

The beginner, therefore, in buying an or-

chard, should study the varieties in it, and if any are undesirable he should bear in mind that they must either be rooted out or top grafted, and this expense must be considered.

PROPER SOIL AND LOCATION.

IN buying a fruit farm an important consideration is the soil conditions in relation to the fruits to be grown. The most signal blunders are often made in this way, resulting in failure and disappointment. Mr. Smith pointed this out most clearly, and thought a few hundred dollars additional to secure right soil should not be considered when making a purchase.

Location was important with respect to markets. Mr. Smith's practice is to sell all fruit f. o. b., and in this he spoke in line with the advice given in these pages. He condemned the custom of shipping everything to the commission merchant, who often takes the kernel and returns the husks.

The secret of success in fruit growing is to grow a choice article and then sell it for its value, and the fruit grower should do this himself and have something to say about the price. There is no trouble selling a really choice article in any market by direct sale.

FERTILE SOIL AND MOISTURE.

THESE are two essentials to success in fruit growing, and Mr. Smith pointed out how important the latter is in a dry season, such as often prevails with us. Cultivation for the retention of moisture was a good practice, and in no section had growers more faithfully observed it than in the Niagara District. But through their faith in cultivation as a panacea, the growers were forget-

ting that *humus* was needed also in the soil to help retain moisture. The easiest and cheapest way to furnish humus was by plowing under green crops in the spring, such as rye or clover. Cover crops served three purposes: (1) The supply of nitrogenous matter, (2) the winter protection of tree roots, and (3) the addition of fertility.

What cover crop would you advise? was asked.

Mr. Smith favored crimson clover for the Niagara District, sown in July. The hairy vetch seed takes easier and covers the ground well, but is rather expensive. Peas are good, only that they die in the fall, and consequently lack in the winter protection. Cow peas are excellent also for adding fertility, but they also die in the fall.

Cover crops should be plowed under as early in the spring as possible, else they rob the soil of its moisture.

Is it costly to adopt this practice?

On the other hand, it is economical. It really only leaves ten weeks of cultivation, say from the first of May until the middle of July, for at the latter date the ground is seeded down until the following spring.

PRUNING PEACHES AND PLUMS.

PRACTICALLY the same advice was given on this subject as we have so often advocated in these pages. Mr. Smith advocated close and careful pruning; he would treat a tree on the same principle as a grape vine, aiming at leaving only as much bearing wood as the tree should carry; in this way also, thinning of the fruit itself would be unnecessary.

He would not plant too closely. He thought 18 or 20 feet apart not too far, because in such case the tree would extend over more area and yield more fruit. As an illustration, he instanced a Quackenbos plum tree at Mr. W. M. Orr's place at Fruitland, which was given plenty of area and had

reached a fine size. More than once this one tree had yielded thirty baskets of fruit.

THINNING FRUIT.

MR. E. D. Smith fully endorsed the advice so often given in this journal about thinning fruit, especially in the case of over-loaded trees of peaches. For example, in an orchard of eighty Triumph trees, four years old, he had a very thrifty growth. The trees were over-loaded with fruit, but he left them hanging until after the "June drop," which thinned them considerably. Still there were about one thousand peaches on each tree. Now, 80 three-layer (or two-inch) peaches would fill a twelve-quart basket, and five baskets of fruit was a full crop for a four-year-old peach tree. He therefore, for the sake of experiment, selected two trees as nearly alike as possible, leaving one unthinned, and reducing the number of peaches on the other from 1,000 to about 400. Off this tree he sold four baskets No. 1 peaches at 60 cents each, and one basket of No. 2 at 10 cents, making the total proceeds from the thinned tree \$2.80.

From the unthinned tree he took seven baskets of fruit, but it was useless stuff that did not sell for enough to pay cost of handling and baskets. Besides, the limbs were broken down and split by the over crop, and the tree itself so stunted that it was at least three years in recovering itself.

What did the thinning cost you?

The expense was no more than it would be to pick them later when more mature. They must be picked anyway. I estimated that it would cost about one cent a basket, or five cents a tree to do the work; but, by judicious pruning a great deal of this work of thinning would be avoided.

When would you spray, if you could only spray once?

Just before the buds open, was the response, with Bordeaux, or possibly with the

lime and sulphur spray. To prevent curl leaf and cherry aphid use whale oil soap.

GOOD SHIPPING VARIETIES BEST TO PLANT.

THE great Northwest, as a future market for Ontario fruit, has often been discussed in these columns. The great difficulty lies in the soft nature of our peaches and plums, and not in the packing. Winnipeg papers praise California packing and abuse Ontario, not understanding that fruit grown in a dry climate will carry very much farther than the same grown in a wet climate.

Mr. Smith's advice was that we plant with a special view to this great market, selecting only such varieties as will carry. Of the hundreds of kinds, of course only a few will suit our purpose, but these few are the ones to select. For example, in peaches we have Elberta and Smock. Both of these will carry, but the latter is rather too late and comes in when the demand for peaches is about over.

In plums, the Purple Egg, Reine Claude and Satsuma are good shippers. So is Damson, and there is quite a good demand for this little plum both in Ontario and in Manitoba.

Grapes carry very well, but the tougher skinned ones carry best.

Name some varieties of grapes which you would recommend for distant markets.

On deep rich soil, Agawam and Verennes; on light land, Rogers 4; on heavy land, Lindley, Rogers 43 and Rogers 44.

"I think," said Mr. Smith, "there should be a lot of special work done in experimenting with varieties especially adapted for distant shipments," and we took note of this as a hint to our Ontario fruit stations.

What about Concord and Niagara?

For ordinary land no grape will give surer returns than the Concord; but for Niagara

you must have good rich soil, and then it will give excellent returns.

BLACK KNOT AND CHERRY BIRDS

SIR,—In this section of country, on account of the black knot, the growing of cherries is almost a thing of the past, and, what few cherry trees are growing, are so infested with birds that it is high impossible to get any cherries off them. One man grows a few and protects them from the birds with a wire netting. I grew the Belle Magnifique some years ago and it was nearly exempt from the ravages of the birds. I attributed this to its lateness of ripening and being of an acid taste. Now, I want to know what varieties of cherries are exempt, or perhaps I would be more correct in saying less liable to be attacked by birds; and are cherries which ripen late, say the end of July, or the beginning of August, less liable (on account of other bird food being more plentiful), than the early ripening ones.

Wellburn.

JOHN McAINSH.

Where black knot is not destroyed it will spread rapidly and completely clear out the plums and sour cherries from an infected district. We have found, however, that it is very easy of control, for it spreads from spores from the growing knots, of which there are two sorts—a winter and a summer spore. By keeping a close watch upon our trees and cutting off and burning all knots, or by painting with kerosene those knots which cannot be removed without great injury to the tree, we have cleared out the knot from our orchard, and now very seldom meet with it. As for cherry birds, we are not troubled much with them except among a few varieties. The most subject, we think, is Early Purple, for unless we are on hand very early in the morning the cherry bird takes the whole crop. This is the first cherry to ripen, and its flesh is sweet and tender. Several other soft-fleshed cherries, with tender skin, such as Black Tartarian, Elton and Black Eagle, are favorite cherries with the birds; but the firm-fleshed varieties, such as Napoleon, Yellow Spanish, Elkhorn, Windsor, and the Pie and Morello cherries, are not much troubled with them.

POINTERS ON STRAWBERRY CULTIVATION.

A short time ago we received a letter from a subscriber in Toronto as follows:

SIR,—Could you give me any information (or put me in the way of getting it), relative to the cultivation of the strawberry and other small fruits for the market. Some article or work, if not expensive, that would tell how a man should start so as to make a success.

It does seem as if everything had been said already on this subject, but we are glad our subscribers ask questions, for this is the only way we can know what to write about. Now, instead of giving our own methods, suppose we tell our readers some of the methods adopted by others, for we recently listened to Mr. W. F. Kydd, of Simcoe, addressing the farmers at Grafton on "How to Grow Strawberries," and to Mr. F. G. Tice, of Oswego, N. Y., addressing the fruit growers at Rochester upon the same topic.

SOIL.

Our own experience on light sand has been a failure, because it dries out just as the berries need moisture for their maturity. Tice claimed he had exactly the ideal soil to grow big crops at Oswego, N. Y. It was formerly a wet, cold soil, but now thoroughly underdrained so that there was no standing water. This soil gives moisture in fruiting season when it is most needed.

PLANTING.

Tice would mark out his ground with a hand drawn marker, consisting of a board of 3-8 inch stuff, 12 feet long, with little sleigh runners $2\frac{1}{2}$ feet apart, with which the land is marked two ways, leaving it in checks of squares. The plants are set at the intersections, and the first cultivation may be done two ways, thus reducing the hoeing as much as possible. Then after the runners became numerous, he trains them to make narrow rows in one direction and cultivates only one way.

His plan for setting seemed a good one.

A man carries basket of plants with cover on his back, and with a spade opens the ground; a boy takes out a plant and throws it in, and the man packs the earth about the plant with his foot. This is a far quicker method than is usually given in the books.

CULTIVATION.

Terry says in his book: "There is just one secret about taking care of a strawberry patch easily, and that is, never let any weeds see daylight. It is cheaper to hoe three times than once, and pleasanter too."

Tice advised very shallow cultivation—stirring the ground not more than one inch in depth. Then use a wide hoe with a narrow blade for hand work. The first runners are the strongest and make the best plants, so they should be encouraged until, about the first of September, you have a row about six or seven inches wide. It is foolish to have it wider, for it is on the outside plants that the greater part of the fruit is borne.

After fruiting season Tice sows barley between the rows; this keeps down the weeds, and as winter approaches it affords a protection to the plants. In the fall, mulching is an essential. Terry uses wheat straw; but if mice are abundant advises cut straw one inch deep.

SORTING.

Tice employs women to sort out the fancy berries, leaving no small green or imperfect berries in the first-class grade. In this way he has gained a high reputation for his No. 1 berries. Every basket of this grade is wrapped in thin white paper, through which the beautiful fruit shows its color. This pays, both for beauty of appearance and because the fruit keeps longer and retains its color better. Marshall and Brandywine, thus protected, keep their bright fresh look, and so does even the Clyde, the Ben Davis of strawberries.

FRUIT AND FLOWER EXHIBITS AT FAIRS.

At the meeting in Toronto of the Canadian Association of Fall Fairs and Exhibitions, Mr. T. H. Race, of Mitchell, criticised the present methods of exhibiting fruit adopted by our fall fairs. The great object of a fair was, in his opinion, the education of the public along certain lines. This object was largely defeated in the case of fruit when signs were put up of "Hands off," and a bar built alongside preventing people from coming near the exhibit. In some cases wire netting was added, still further defeating the object in view in making the exhibit. To learn the most from the fruit exhibit, the people should be allowed to come near and even to handle the fruit.

"*They would steal it,*" said one. "*They would eat it all up,*" said another.

"No, they would not," said Mr. Race, and he instanced the case of the London Fair, where the fruit was set out on tables not too wide, without protection, and after a trial of four years no complaint was made and no fruit was stolen. People should be allowed to examine the fruit if they wanted to. It was shown for people to see and study its characteristics, and after it was judged why should they not be allowed to do so.

EXPERT JUDGES IN FRUIT ARE NEEDED.

There were many testimonials to the excellent satisfaction given by the expert judges who had been sent out by the superintendent, Mr. G. C. Creelman, during the past year, to judge horses, cattle and sheep and swine, and a resolution was passed asking that expert judges in fruit and poultry be also sent out.

How do you select expert judges? asked some one.

Such men are few and hard to find, said Mr. Creelman, but we ask the various associations to name their best men, and from these we make our selections. Each judge

is instructed to attempt nothing outside of his specialty.

What is the cost to the Fair boards? asked another.

Five dollars a day for each judge, was the reply. The total cost, including traveling expenses, is about \$10 a day, of which the department pays one half.

All seemed to agree that this arrangement was most liberal and satisfactory, and that one expert judge, who was not acquainted with the exhibitors, was worth far more than three judges, as ordinarily chosen.

THE JUDGE SHOULD BE AN EDUCATOR.

Mr. Race would not have the people excluded while the judging of fruit was in progress. They should be present to see the scoring of the varieties, and the judge should be prepared to give his reasons for every award, a course which would be both educative and in most cases satisfactory. Prizes ought not to be awarded to a collection simply for its number. Every scrub apple added, in his opinion, lessened the value of the collection, and detracted from instead of adding to its value. A collection for home use should be selected to cover the season, as well as embrace kinds of best quality.

ATTRACTIONS.

Mr. F. W. Hodson, of the Department of Agriculture, Ottawa, in the course of a most excellent and comprehensive address, pointed out the importance of the selection of a secretary, who should be constituted managing director and be paid to give certain office hours to the work; and of having the directors each represent a section whether of fruit, poultry, horses, etc.

Among the attractions he would have school children's exhibits of collections, seeds and plants; Caledonian games; horseback riding; and many other features, barring always the horse race, which injured a fair more than it helped. Mr. Race would have

the horticultural societies take a special interest in the horticultural exhibit, and make it as decorative as possible. In no way could they do this better than by encouraging the school children's exhibits. Plants and seeds might be distributed in spring time to the schools and special prizes offered for the best exhibits made in autumn. Nothing would interest the community more than the children's competition.

Mr. H. B. Cowan, of Ottawa, strongly supported this latter department of work, instancing the recent model fair in Carleton county, at which the school children's collections of weeds, insects, seeds, flowers, etc., formed the most interesting feature of the whole fair.

The Model Kitchen was another most interesting feature of the Carleton county fair, with a competent woman to give a lecture and a cooking demonstration. Another was the athletic contest, which was made the occasion of competition for the county league championship.

OWEN'S PROCESS.

IT is strange how many nostrums are being offered to our farmers and fruit growers in order to get their money. Mr. G. W. R. Rennie, gardener for the Asylum for the Insane, London, encloses to us a circular in which the above process is said to be a discovery of immense practical value in protecting fruit trees against insects and fungi. What the process is remains a deep mystery, nor does the circular say for which of the many fungus diseases it is effective, nor how it can reach the insects. Owen's process, the circular reads, consists of administering into the growing tree certain ingredients which the inventor has proved to be effective for the purpose above mentioned. Under the head of "How it Operates," we read as follows:

"Water within the tree, containing acid,

carbon-dioxide, etc., dissolves and takes up in solution the ingredients discovered by the inventor (when applied according to his process), by means of the natural process in tree and plant life known as osmosis in conjunction with the processes commonly known as root pressure and leaf transpiration, and these ingredients are, by the circulatory system of the wood cells, etc., absorbed, and, by filtration, carried in solution throughout the entire tree and into the foliage thereof, into which it is easily traced." And under the head of "What it Does," we read that it prevents damage by, and destroys, the insect pests and fungus growths injurious to the tree. It protects the trees and fruit against damage by borers, codling moths, caterpillars, San Jose scale, black knot, leafcurl, yellows, scab, and other insect, parasite and fungous enemies to trees."

Mr. Rennie wants to know if this "process" is either reasonable or practicable. A simple word of two letters, viz., *No*, is perhaps reply enough. The plan reminds us of the old one of boring a hole in the tree and filling it with sulphur to cure black knot; or the old remedy among our boy companions of stooping down and spitting under a stone to cure side ache.

NEW YORK STATE FRUIT GROWERS.

WHILE our Ontario Association has the largest membership of any horticultural society in the world, owing largely to its monthly journal, which is a bond of union between the various smaller organizations and a means of communication between the individual members, the Western New York Horticultural Society has the largest meetings. They are always held in Rochester, the fruit centre of the state, and toward the end of January, when fruit growers have the most leisure. The first president was Mr. Patrick Barry, founder of the Ellwanger & Barry nurseries,



FIG. 2565. MR. BARRY.

and since his decease Mr. W. C. Barry has ably filled the honored position.

THE FRUIT EXHIBIT.

A basement was devoted to the fruit display, which was creditable in some points, but scarcely equalled our own at Walkerton. The leading pear exhibit was as usual by Messrs. Ellwanger & Barry, and their Anjou pear was really the only one that showed up as being very desirable as a market variety. It is truly a magnificent pear, and we have found it one of the best for export, but not very productive as a dwarf; besides it drops early.

EXPORT PEARS.

"The Duchess is my favorite pear," said Mr. McNeil, our chief inspector, who was looking over the exhibit with us. "I have an orchard of five hundred trees, and I intend to set five hundred more of the same variety in the spring." We remarked that it was an excellent export pear, but often sold very low in our home markets. "I know it," said Mr. McNeil, "but I intend to

plant nothing more for home markets. I want to plant for export only, and for that it is first class." We mentioned Pitmaston as promising, especially for long shipment, for as grown at Maplehurst it is very large and desirable in appearance, and it is firm enough to hold up in ordinary storage. "That is at present the first consideration with us in Ontario," said Mr. McNeill, "and until we get proper storage from start to finish we must make shipping quality the first consideration in planting. We can never unite with this the highest quality for dessert, because delicacy of texture and juiciness go with high flavor. So it is useless trying to get varieties to combine high quality and firmness. We should rather aim at a better system of cold storage, so that we can ship our tender, delicious Crawford peaches and similar high class fruits to distant markets. As it is, they are spoiled before they reach the steamer by hot packing houses and hot cars."

"There is a pear," said Mr. John Charlton, of Rochester, "the Barry, which will carry any distance, but the trouble is it will never ripen after it is picked." We thought it too bad it should carry so good a name as that of Mr. Barry, and wondered if it was given it to help its sale.

YORK IMPERIAL APPLE.

The question was asked at Rochester, How many have tested the York Imperial? Out of all the 500 fruit growers, no one replied except Prof. Beach, of Geneva, who reported having it at the station grounds, and that he was disappointed in it. It was small and not highly colored, and he doubted whether it was adapted to New York State.

BETTER PRICES FOR HIGH GRADE FRUIT.

The subject of packing and grading was treated in an excellent address by Mr. McNeill, of Ottawa. He made a good point

when he stated that the present need was rather the growing of more high grade fruit than the packing of it. This would not come about until the grower saw a greater difference in price between the grades. It was a shame to see fine King apples sold for the same price as Ben Davis, and a shame to see such poor samples of all kinds exported. Fruit growers will not grow high grade fruit for mere sentiment; but, when men see that high grade fruit pays in dollars and cents, and that poor stuff does not pay—and that day is at hand—then they can no longer afford to grow poor samples, nor to mix them in the same packages with high grade stock.

THE APPLE ROT OF 1902.

Mr. H. J. Eustace, of Geneva, N. Y., reported an apple scab and the white fungus that accompanied it on apples last year, and which caused the rot of so large a portion of the crop in New York State and in Ontario.

The scab appeared in August and September, unusually late, owing to the wet autumn; and the white fungus was quite distinct from it, and could not have found an entrance through the skin had not the scab first made an opening. This white fungus has been known for fifty or sixty years as attacking dead wood and rotten fruit, but never was so injurious to fruit as in 1902, and is not likely to be so troublesome again unless in a peculiar season like the one just passed. The remedy, of course, is spraying, for this prevents the scab, and without the scab the white fungus would be harmless.

COLD CHECKS SCAB.

Mr. Eustace further reported on experiments with scab in cold storage. He had put away apples inoculated with scab fungus in a temperature of 32F, and others in a temperature of 70 degrees. The latter soon developed scab at the point of infection,

while the former did not show it all the time they were kept in the cold, but when brought to a high temperature the fungus appeared in the course of time. Scabby apples, therefore, can be kept without depreciation below 45 F.; but for the best results the storage should be dry and well ventilated. Mr. Eustace believed that the spores of scab might be spread to trees from apples on the ground, and these therefore should be plowed under or otherwise disposed of; though, of course, a thorough covering of Bordeaux would secure the trees from infection.

Some growers reported good results from spraying with lime and sulphur, both for scale and fungi, and one stated that he had treated his apple orchard with a fine spray of pure kerosene in the month of February, without the least injury, and he believed he had destroyed both scale and scab.

GRAPE LEAF HOPPER.

This insect, commonly called thrip, is a near relative of the rose leaf hopper, and very difficult to destroy. Prof. Slingerland, of Ithaca, N. Y., had tried blankets of tangle foot, against which the hoppers were driven and caught fast, but this plan, though fairly successful, was too costly. He had tried spraying with kerosene, but grape foliage was too tender, and would not take more than 5 or 6 per cent of kerosene, so this was a failure, but he hoped for some success with whale oil soap, 1 lb. to 10 gallons, applied about the 1st of July. It would kill every one it hit, and a return spraying to kill those which fell to the ground might make the work pretty thorough.

YELLOW S OF THE RASPBERRY.

This evil has appeared in Mr. Metcalfe's plantation at Grimsby and in other places in Ontario, and we have failed thus far to meet anyone who can explain it. Prof. Stewart,

of Geneva, had met with it along the Hudson, where the Marlboro was so badly affected with it and with cane blight that this variety was being discarded. The yellows attacked both growing and fruiting canes, and rendered the fruit insipid. But so far both cause and remedy is unknown.

RASPBERRY CANE BLIGHT.

"This," said Prof. Stewart, "appears just as the fruit is ripening, and is a very destructive fungus, in some cases reducing the fruit crop 25 per cent. It first discolors the bark and finally kills the canes. Spraying with Bordeaux had not proved of any use, and so far the only advice he could give was to secure healthy plants and to cut out the old canes as soon as the fruit is gathered."

THE APPLE TREE TENT CATERPILLAR.

M R. D. C. CROSBY, of Berwick, N. S., writes: "I enclose you a nest of caterpillar eggs, which, if illustrated and explained, might help us to fight the pest. This nest came off a plum tree, but I find them on apple trees also."

The nest contains the eggs of the Apple Tree Tent Caterpillar, and when the letter reached us the warmth of the room had deceived the tiny little worms into the belief that spring had come, and they began to come out of their egg state and crawl about the letter. These eggs were deposited in July upon the smaller twigs of the fruit trees, in ring-like clusters of, in all, perhaps, two or three hundred. We give the following description of them, with cuts, from Dr. Saunder's excellent work, entitled "Insects injurious to Fruits," a work that should be in the hand of every fruit grower: The



FIG. 2566

eggs are conical, and about one-twentieth of an inch long, firmly cemented together, and

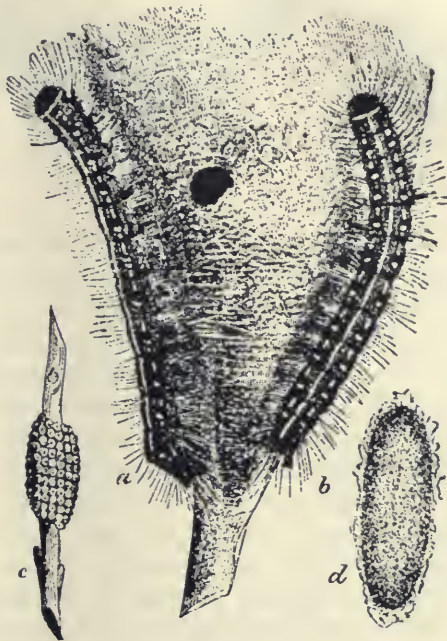


FIG. 2567.

coated with a tough varnish, impervious to rain, the cluster presenting the appearance shown in Fig. 2566. In Fig. 2567, at c, a similar cluster is shown with the gummy covering removed, showing the manner in which the eggs are arranged. The young caterpillars are fully matured in the egg before winter comes, and they remain in this enclosure in a torpid state throughout the cold weather, hatching during the first warm days of spring. They usually appear during the last week in April or early in May, much depending on the prevailing temperature. Their first meal is made of portions of the gummy material with which the egg masses are covered, and with the strength thus gained they proceed at once to work. At this time the buds are bursting, thus providing these young larvae with an abundance of tender food. * * * These larvae are tent makers, and soon after birth they begin to construct for themselves a shelter by extending a sheet of web across the nearest fork of the twig upon which they



FIG. 2568. MALE AND FEMALE MOTH.

were hatched. As they increase in size they construct additional layers of silk over those previously made, attaching them to the neighboring twigs, and leaving between the layers space enough for the caterpillars to pass. * * * In five or six weeks they become full grown, and then measure about an inch and three-quarters in length, and present the appearance shown in Fig. 2567, a and b.

We do not need to continue this extract, as every orchardist must be only too familiar with the way in which these worms strip the foliage off the orchard trees in the month of June.

The practised eye of the fruit grower will readily detect the egg clusters in March or April, when pruning, and a great part of the nests readily destroyed, while a thorough treatment with Paris green will destroy them in summer if not too long delayed. There is another variety known as the Forest Tree Tent Caterpillar, that invades our orchards from forests that border upon our orchards; and with such a breeding place their invasion becomes so serious that their destruction is by no means an easy thing.

BLACK KNOT.

MR. D. C. CROSBY, of Berwick, N. S., writes that many plum trees in the Annapolis Valley, Nova Scotia, are being cut down, being so badly infested with black knot, and for this reason very few new plum orchards are being planted.

Surely there is no need to give up the cultivation of the plum on account of the prevalence of black knot. Neglected, it spreads rapidly, and soon destroys the plum and sour cherry trees; but it is one of the easiest to

control of our numerous fungous enemies. All affected parts should be cut out in the fall and burned, and if the knot is found upon a large limb or trunk where the whole cannot be destroyed, it should be cut out and the wound washed with kerosene. Young knots appearing in summer may also be painted with kerosene, colored with red oxide of iron to mark the parts under treatment and give greater consistency to the oil. In Ontario we have a black knot act, compelling the destruction of this fungus, which is most effective, and our Nova Scotia friends should try it, as we have done with such success.

LIME AND SULPHUR SPRAY.

BARRING the inconvenience of preparation, the lime and sulphur spray seems to be the one of our most promising remedies for fungi and scale insects of all kinds. How far it may act in the prevention of apple scab we do not know, but certainly we have considerable testimony to its general usefulness. If only some one particular spray, applied before the busy season, would answer all purposes, no doubt fruit growers would not grumble much at the trouble of its preparation.

Please give me the formula, said a gentleman, who has a fruit farm near Toronto, and I will try it as early as I can in the spring. I have a large new boiler for heating water for my business, and the boiling would be no trouble. I will give it a good trial and give you the result of my experience.

In reply we gave him the following formula:

Sulphur, $\frac{1}{2}$ lb.

Lime, 1 pound.

Water, 40 gallons.

The sulphur is first put on with a smaller quantity of water, and brought to a boiling point; then the lime is thrown in, adding more water if necessary to prevent burning. When the lime is slacked more water is

added and the whole boiled for two or three hours. Then add hot water to make the proper proportion and apply while hot. At no time will the mixture work as well as when perfectly fresh.

COST OF APPLICATION.

At Mr. McCardle's place, near St. Catharines, as described on page 500 of our journal for 1902, we found Mr. Fisher preparing this mixture in a dozen kerosene oil barrels, using the steam generated by a threshing machine engine to boil the contents. The cost he estimated at only about $1\frac{1}{4}$ cents per gallon, or about $\frac{1}{8}$ the cost of whale oil soap.

GOOD RESULTS.

Prof. Beach, of Geneva, N. Y., gives some evidence in favor of an early spraying with this lime and sulphur wash. He stated at the recent meeting of New York State fruit growers that at the Geneva station last spring 31 large Baldwin apple trees were treated with this spray just when the leaf buds showed the first sign of green, and no further spraying was given them. A few trees of the same variety near them were left untreated, and the fruit on them was unmarketable, while the 31 treated trees gave a yield of 275 barrels of apples remarkably free from scab. This seemed to prove that one such treatment before the opening of the leaves was more effective than the same treatment at any later period. He thought that this one application should always be given if every other were omitted.

SUCCESS WITH BORDEAUX.

Ordinarily Prof. Beach advised, however, four sprayings with Bordeaux, as follows:

First—Just before leaf buds open.

Second—Before blossoms open.

Third—As blossoms fall.

Fourth—Ten to fourteen days later.

But, as Mr. Race said at Stony Creek, what is the use of prescribing for the

farmer more work than he can possibly get done? This spraying is the most troublesome and perplexing work our orchardists have to undertake, and if it were only possible to do with one application. Mr. Race seemed to think they might spray three times, but we think very few will do it and do it thoroughly. Prof. Beach thought the first two sprayings on his list might be combined into one, unless leaf eating insects were numerous, in which case, of course, Paris green or else white arsenic would need to be added.

In case the above sprayings with Bordeaux were to be given, he did not think there was need of the winter treatment. But Mr. Professor, if you can only give us a spring treatment, like that lime and sulphur with which you had such good results, and make it a little easier of application, and tell us that it will be the first and last needed for the whole season you will merit our most sincere gratitude. Every up-to-date fruit grower will take the time to cover every inch of wood, and carry out your instructions to the letter. This is something they will never do as a rule while you make the business so difficult.

Mr. Denny, of New York State, sprayed four times with Bordeaux, giving the last application about the end of June. He had chiefly Baldwins, Greenings and Spy. As a result he had 1,800 barrels of perfectly clean apples out of total crop of 1,950. In his opinion it was the early spraying that did the most good.

SHIPPING TOMATOES—BEST STAGE OF MATURITY—PROPER TEMPERATURE IN STORAGE.

SIR.—I have been shipping tomatoes from Florida to the northern markets during the months of March and April, for the past two seasons, but have not been very successful in the venture. You give 34 degrees as a good temperature at which to carry them, but do not state whether this was for green, half ripe or fully colored fruit.

Elmira Height, N. Y. S. B. CLARK, M. D.

We have referred this question to Mr. A. W. Peart, Freeman, who also has been experimenting in forwarding tomatoes to England, and he says:

In the past three years, during the latter part of September, I have shipped to Glasgow a few boxes of Honor Bright tomatoes. They are medium in size, late, very firm, smooth, of excellent quality, and very productive. They are the most likely export tomato with which I am acquainted. There are four clearly defined stages of maturity, viz., green, waxy white, yellow and red. For export I pick them when yellow, choosing medium size specimens, not too small nor too large, cut them from the vine with scissors, leaving about half an inch of stem adhering. Each tomato is wrapped in tissue paper and packed in excelsior, the same as pears. I use the quarter barrel box, holding about two twelve-quart baskets put up in this way. The first year they sold at 6 shillings a box, the second at 4 shillings, and the third at the same price. At the latter figure I would nett about 34 cents per box, or 17 cents per 12-quart basket. According to the advice received from our consignee in Glasgow, the last lot—shipped in cold storage—reached there in practically the same condition as they left here, that is, unripe. In a few days, however, they would ripen nicely if placed in a dry warm room. All things considered, I have confidence that a fairly profitable export trade may yet be developed in tomatoes.

LABOR ON THE FRUIT FARM.

JUST at the present time there is an unusual scarcity of farm help both in Canada and in the United States, owing in part, no doubt, to the excellent opportunities in the Northwest to become land owners. At a meeting of the Niagara District fruit growers at St. Catharines on Saturday, the 21st of February, a motion by W. H. Bunting was passed which requested the

government to do all in their power to encourage the emigration to this country of a desirable class of men.

Considering the great army of unemployed men in Great Britain, and the number of young men of all classes desirous of learning fruit farming, and willing to take instruction as part pay for their work, we have no doubt that by the time the fruit season arrives there will be an abundance of such help as is required to handle the crop.

MARRIED MEN BEST.

As a rule married men are best on the fruit farm, and every fruit farmer needs a cottage for a workingman's family. It may be a nuisance at times to have a lot of children in the neighborhood, but in the fruit season a mother and her boys and girls are a blessing to the fruit grower, for she is the natural foreman of her gang, and responds heartily to liberal dealings.

GROWING APRICOTS.

SIR,—I note in the January number of the Canadian Horticulturist, Mr. Harrison Weir's letter as to the growing of apricots in Canada, and your explanation, which entirely agreed with my own experience at Niagara-on-the-Lake.

Some years ago I planted in a strong clay soil, well under-drained, different varieties, which made good growth, and are now large and healthy trees. They bloom profusely, but so early that frost is sure to effect them more or less, while the "curculio" and rot leave few to mature.

I doubt if apricots will ever be grown with profit in our climate.

Yours truly,

CHARLES HUNTER.

Niagara-on-the-Lake.

TILLAGE FOR THE ORCHARD—III

SPRING AND SUMMER TILLAGE TO CONSERVE MOISTURE.

BY

PROF. J. B. REYNOLDS,

O. A. C., GUELPH.

A NOTED farmer of Ohio, speaking to a gathering of Ontario farmers a few years ago, said: "If I have a sufficient supply of moisture in the soil to begin with, I can make sure of a good crop without summer rains."

There are, for us, three important questions here implied: How much moisture is required for a "sufficient supply," have we that quantity to begin with in the spring, and how may we make sure of a crop without depending upon summer rains?

1. *How much precipitation makes a sufficient moisture supply?*

The answer to this question depends very largely upon the character of the soil, its power to retain moisture, its drainage properties, and the depth to which the subsoil allows the water to penetrate. It depends, also, in part, upon the character of the crop, whether deep or shallow-rooted. But supposing that a well-drained soil is to be saturated to a depth of four feet, it will require, ordinarily, a precipitation for the fall and winter of about twelve inches to accomplish this. Anything more than that amount

must be removed by drainage, or penetrate to a greater depth, or if it cannot penetrate, must run off the surface.

2. *Have we in Ontario this sufficient quantity of moisture with which to carry to completion the season's crop?*

Below are diagrams showing the average monthly precipitation for points in Ontario. Montreal, without much error, may be taken to represent the extreme east of Ontario; Ottawa, the middle east; Toronto the middle, and Port Arthur the west. Halifax, N. S., and Prince Albert, Sask., are also shown for the sake of comparison. In these diagrams two items are worthy of consideration: The total annual precipitation at each locality, and the distribution of the precipitation over the year. These items may be represented in figures as follows:

	Inches.	Oct to Mar.	Apr. to Sep.
Port Arthur ..	23.70	30%	70%
Toronto	31.08	51	49
Ottawa	33.93	46	54
Montreal .. .	40.49	51.5	48.5
Halifax. . . .	57.21	57	43
Prince Albert.	15.06	32	68

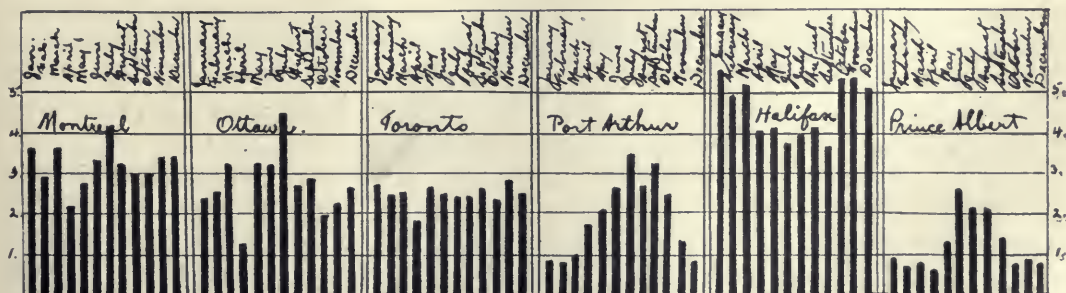


FIG. 2569. DIAGRAM SHOWING NORMAL PRECIPITATION IN INCHES, AT POINTS IN CANADA.

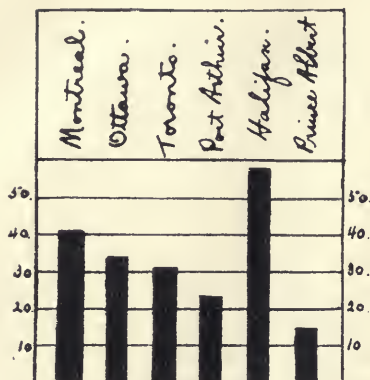


FIG. 2570. DIAGRAM SHOWING NORMAL ANNUAL PRECIPITATION IN INCHES, AT POINTS IN CANADA.

At points in Old Ontario, about 50 per cent. of the total annual precipitation occurred during the inactive season—October to March. At Toronto, 15.82 inches fall during this period, sufficient to supply the 12 inches mentioned above as necessary to saturate to a depth of four feet, and to allow nearly 4 inches for drainage, seepage, and run-off. For Old Ontario, therefore, the point is established that there is a sufficient supply of moisture to begin with. For Port Arthur, as representing the west of New Ontario, the 7.13 inches that fall during the inactive season will saturate the ground only to about a depth of 30 inches. At Halifax there is enough for the purpose mentioned, and over 20 inches to spare. At Prince Albert the precipitation from October to March, 4.85 inches, would saturate the ground only to a depth of about 20 inches, which is quite insufficient. Prince Albert is within the arid, or semi-arid belt of the Canadian Northwest.

In respect of winter precipitation, the conditions that prevail in Old Ontario are by far the most desirable of those above described. To have just enough, and not enough in excess to produce destructive surface washing or to water-log the land, is the most desirable condition. But while we have enough,

we have none to waste. We cannot afford to be prodigal of our resources in this respect. The heavens may yield their showers, and the land may be as iron—impenetrable. Unless the surface soil and the subsoil are sufficiently pervious to allow the water to enter, the ground will remain without moisture. It is the business of every farmer and fruit grower, as was shown in the previous article of this series, to prepare the land in the autumn so that it will absorb the maximum amount of water.

3. *How to make sure of a crop without depending upon summer rains.*

If we can thus make sure of a crop, it is a good thing, for the summer rains are uncertain both in quantity and effect. It is a safe position, therefore, to take, that the more nearly we approach this independence the better it will be. And as for the summer rains, we must contrive to make the most of them when they are effective, and, when they are too light to be favorably effective to prevent them from doing harm.

There are four methods by which moisture may escape from the soil:

Seepage and underdrainage.

Surface drainage.

Evaporation into the atmosphere.

Transpiration from the leaves of plants.

In the summer the first two modes operate but rarely, and only in cases of excessive rainfall. But the other two, evaporation and transpiration, are very active. It is the business, therefore, of cultivation to reduce both these modes of loss to the lowest possible quantity. The opportunities for doing this, as represented by the different methods of orchard cultivation now in vogue, will now be considered.

First, it is well known, better known than practised, that a loose covering or mulch upon the soil will check evaporation to a remarkable degree. It is equally well known that land bearing a crop of any kind, grain, grass, roots, or weeds, is usually much drier

than bare land. The moisture has been extracted from the soil by the crop. These are admitted facts, not requiring illustration or proof. What is their bearing upon the methods of cultivation for orchards?

Clean cultivation, as a means of conserving moisture in soils of orchards, is without question the most effectual. This method so clearly and fully meets the requirements above referred to, maintaining a surface mulch upon the soil to check evaporation, and destroying weeds to prevent loss by transpiration, that the matter need not be argued further. Any fruit grower who allows an extra crop to grow in his orchard is, unless there is moisture enough for the proper development of both fruit and the other crop, sacrificing the interests of his orchard. Where a sodded orchard, for instance, is found to be generally more satisfactory than the cultivated orchard, that locality must possess an abundance of rainfall for both purposes. This abundance does not generally prevail in Ontario, and it should be seriously considered, at all fruit sections in Ontario, if clean cultivation is not the most profitable method.

For the year round, and for all purposes relating to moisture, clean cultivation for the summer, and a cover crop sown in the early fall and plowed down in the spring, together

make the best method for orchard tillage. The advantages of the combined methods are:

(1) By clean cultivation in the summer the loss of soil moisture, through evaporation and transpiration, may be checked; the moisture present in the soil being thereby saved for developing and maturing the fruit.

(2) Summer cultivation may cease, and the cover crop be sown, earlier or later, according to the season. If it is a wet, cold season, like that of 1902, cultivation should cease and the cover crop should be sown earlier than usual in order to dry out the land, and thus serve a double purpose: to mature the new wood on the trees, and to ripen and color the fruit.

(3) The cover crop, as was mentioned in the previous article of this series, is a protection to the tree roots in the winter, and checks surface washing.

(4) The cover crop, especially if it is a crop that winters over, dries out the land somewhat in the spring and thus allows earlier cultivation. This finally results in the saving of soil moisture.

(5) The cover crop, when plowed down and incorporated with the soil, enriches the soil and improves its texture, and thus eventually increases its power to absorb and to retain moisture.

NUTRITIVE VALUE OF NUTS

IT has been asserted in the scientific journals of Europe, within the past two or three years, on the authority of chemists and dietary experts, that the nutritive properties of nuts entitle them to a much higher price than they now occupy as an article of food. They even assert that if all other means of nutriment were cut off man could

support life on the nut crop of the world. This statement has also been made in some of the best school text-books of Europe, and it appears in a school book recently published in this country. The rising generation seems likely, therefore, to have a higher opinion of the utility of nuts than their fathers entertained.—*Sun*.

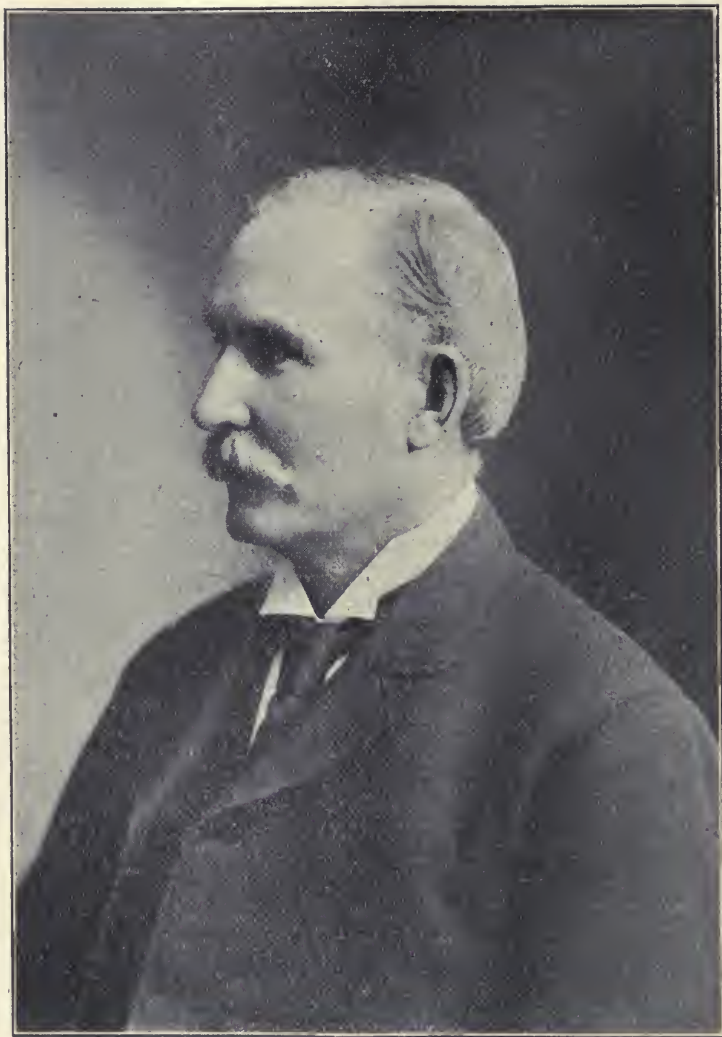


FIG. 2571. HON. JOHN DRYDEN.

MEN WHO HAVE SUCCEEDED—VIII

HON. JOHN DRYDEN.

THIRTEEN YEARS MINISTER OF AGRICULTURE—THE
FARMER'S FRIEND—PATRON OF ADVANCED HORTICUL-
TURE—FOUNDER OF THE ONTARIO FRUIT STATIONS
AND FRUIT INSTITUTES—A USEFUL CAREER.

HON. JOHN DRYDEN will soon have completed his thirteenth year as Minister of Agriculture for the Province of Ontario. Before being appointed to that office in 1890 he had served his country well, he had done his full share in shaping the agricultural history of his country and had made a magnificent contribution to the welfare of Canada. Though for these forty years past he has been prominent as a breeder and importer of pure bred stock, he has shown such a sympathy with all other lines of our varied agriculture that he has gradually come to be recognized as the most successful Minister of Agriculture that Canada and her provinces have known.

He has taken a deep interest in the fruit growing interests of Ontario, and the Provincial Association and the local horticultural societies have, through all the years of his ministry, found in him a warm friend. The best friends are those who warn as well as advise, those who reprimand as well as praise, those who restrain as well as help. Mr. Dryden has helped our work and at the same time has been honest enough to point out our weaknesses and correct our mistakes. His advice has always been wholesome and frank. His advice has not been mere theory either, for though he does not claim to be a specialist in fruit growing, he is away in advance of the average farmer, having upon his farm at Brooklin, near Whitby, one of the finest apple orchards of Central Ontario, an orchard where the best methods are adopted, conducted on scientific principles, one that is productive.

Of this orchard he is quite proud.

What are the special horticultural works that have been originated and developed under Mr. Dryden's care?

The Horticultural Department, as a separate and distinct branch, was begun some years ago at the Agricultural College by the minister's appointment of Prof. Hutt. Visitors to the college, hundreds of students, and thousands of readers know how this work has grown and spread until now it is one of the strong and influential branches of that important institution. It is no longer necessary for our young men to go to Cornell and other American colleges to get a special training in horticulture. Only last year one of the recent graduates of the college received a voluntary offer to go to Utah to take charge of the State horticultural work. Before Mr. Dryden's regime such a man would not have been available. Mention might be made of many who have settled down in this Province and who are rapidly moving to the front in horticulture.

An extensive system of experimental stations is another of the minister's gifts. We asked for one station and he has given us a dozen; not, it is true, of the nature asked for, but, in his opinion, and in the opinion of many, more serviceable than one elaborate station restricted to one section.

Under Mr. Dryden the fruit growers demonstration school was started, the spraying instructors were sent out. The schoolmaster was sent abroad armed with that new weapon of mystery and ridicule, the spray pump. The work was begun in discourage-

ment and indifference, but gradually it won the approval even of stubborn opponents who looked with political frowns upon such an innovation. The simple way was successful, and we are apt to overlook the fact that the minister's sprayers had so much to do with teaching our people how to do it.

Then came something more mysterious still, and not half the mystery has yet been solved—the mystery of the San Jose scale. The story of its coming was an Arabian Nights Tale; its presence here the mere dream of some entomological enthusiast. Surely no hard headed farmer would listen to such a tale! But Hon. John Dryden is ready to listen and to investigate, and before the fruit men of the Niagara peninsula were awake to the situation the axeman was abroad cutting down and burning trees by the power of an Ontario statute. We all know how opposition and questioning arose here and there, fruitmen would not be convinced of the need of such heroic measures. Public opinion, of course, rules in the making and unmaking of laws, so the strong arm of the law was relaxed, and while the fruit growers were disputing among themselves as to the nature of the new insect it was spreading quietly and insidiously, and soon cast its withering blight over a large area. Many who had doubted and protested now had proof of the wisdom of the minister's activity, and felt that had the vigorous treatment been pushed early the dreaded scale would have been stamped out, or at least confined to a small area. We all know how the minister has for the past three years been assisting the fruit growers in the purchase of material for spraying, and how under his direction the superintendent, Mr. Geo. E. Fisher, has carried out the most extensive and most successful series of experiments in the eastern half of the continent. To this must of course be added the provision for protecting the tree planter by the compulsory fumigation of all nursery stock.

These four items are enough to show how interested Hon. John Dryden has been in horticultural work. Other items might be given. Some of them are just being started, such as Fruit Institutes and expert fruit judges for our fall fairs.

More than once the writer of this paper has heard this statement from a man of scientific training: "The remarkable thing about Mr. Dryden is that a man who received no special training should appreciate so fully the scientific situation and be seized of the importance of somewhat obtruse lines of investigation." Mr. Dryden combines a thorough practical knowledge of Canadian agriculture, a keen appreciation of the value of scientific discoveries, good administrative abilities, a desire to employ only first-class men, and a broad dignified hopeful outlook of the farmers calling.

A word or two now as to the man and his life. His father, James Dryden, came from Sunderland, England, in 1820, being at the time a mere boy in his mother's charge. When coming of age he bought a farm of 200 acres in Ontario county. On this farm John Dryden was born in 1840, and here he has won his reputation as a lover and breeder of fine stock, cattle, horses and sheep. The son added to the farm so that it grew to 420 acres, and the vigorous trees soon suggested the appropriate name, "Maple Shade." Here he has lived his married life, a life of ideal home happiness, and here he and Mrs. Dryden have seen grow up their family of five daughters and one son. The name Dryden will be continued, for, though there is only one son, he has inherited his father's love for live stock, and after a short course at the Agricultural College is managing the farm under his father's direction.

Who could estimate the wealth added to Canada by the importations such as those made by Mr. Dryden. Again and again he has gone to England and to Scotland and

brought home of the best. In 1865 the father purchased a two-year-old Shorthorn from Hon. John Simpson. In 1887 the son bought the entire herd of Edward Cruickshank, of Lethenby. Between these lies a history too long to be told in these pages. The story of the Shorthorn bull, Barmpton Hero, would come in there, and every Shorthorn man of Canada, in fact of the United States, knows what Barmpton Hero was.

The agricultural society, the public school, the township council, the village church, all felt the influence of John Dryden, and he in

turn was moulded by them. At last he was chosen in 1879 to represent the constituency in the Legislature, and he has occupied a seat there every year since with the exception of one session.

There may not be much romance in the life of the Hon. Minister of Agriculture, but he has served his country well, he has been honored by his fellow men, he has lived an honorable, straightforward life, and even his political opponents can point to him as an example and an inspiration for the young men of Ontario.—(*Contributed.*)

THE FRUIT GROWERS OF PRINCE EDWARD ISLAND IN ANNUAL CONVENTION.

THE GARDEN PROVINCE HAS A GOOD YEAR AND ITS ASSOCIATION IS FIRMLY FIXED IN THE PEOPLE'S AFFECTIONS—A GREAT GATHERING OF LOCAL AND DOMINION HORTICULTURISTS—FATHER BURKE RE-ELECTED PRESIDENT.

IN the life of Horticultural organizations this appears to be also a growing time. We have just come through our mid-winter meetings, and it will suffice to say that we are proud of them. Certainly, never in the history of our association, has the Fruit Growers' Convention been such an unqualified success. Indeed, as Professor Robertson said, it is hard to recall a convention, in the bigger and more populous provinces, which could compare with ours as to the attendance, the programme, the methods of organization, and the spirit of unanimity which pervaded everything.

The association has received a great impetus from the action of the Federal Government through Prof. Robertson, in sending instructors in all the operations of horticulture here—men who have not only kept up demonstration stations, but, as I ventured to suggest at Cobourg, have gotten into the individual orchards and converted many people who did not know what was

the matter with their neglected and fast failing plantations, into active, intelligent and enthusiastic growers of fruit.

The country meetings during the year, some of them addressed by such giants as Professors Robertson and Fletcher, have been much more extended and better sustained than usual, and that stage of reliable up-to-date horticulture fully entered upon.

The exhibitions, too, have sought the co-operation of the association, and, both working together in perfect harmony, have, by the marvellous shows of fruit, worked wonders in the public mind. Commercial men, awakened to the money possibilities of island fruit, are now on the alert. A grand company, with millions behind it, has taken up quarters among us; and jamming, canning, evaporating as well as the purchase of fruit in its raw state for shipment, will, we are assured, be carried on to such an extent as the supply may permit.

Prince Edward Island is 1,000 miles at

least nearer to the British market than Ontario. Its fruit matures later, too. Slow-maturing apples are not only the best, but afford opportunities for commercial orcharding which cannot be well offset. Take, for example, the Gravenstein. Our friends in Nova Scotia thought that they had a safe monopoly of this luscious fruit. The demand for it was practically limitless in its season, but it was difficult to get it to Britain in the moment of its maturity in N. S. without great loss under the existing shipping conditions. For this reason the sister province has lost millions of dollars on her badly landed Gravensteins alone. The Gravenstein we grow is a superb apple, equal in every way, if not superior, to that of N. S., with this advantage that it ripens just one month later and is, therefore, ready for shipment across under much more favorable conditions of season. Those we have sent over have realized top prices, and we are ready to stay by the Gravenstein here to the end. These facts change old conceptions, too. Gravenstein and Nova Scotia are no longer synonymous terms.

But to the convention and fruit show. The sessions opened on the 10th with a big attendance, despite stormy weather and interrupted communication. This enthusiasm continued through all the meetings to the close. "This annual meeting of the fruit growers of P. E. Island is one of the best, if not the very best, I have attended anywhere," said the distinguished Commissioner of Agriculture for Canada, Prof. Robertson. We certainly appreciate the compliment.

The reports showed a balance on the right side of the ledger after all demands were satisfied; narrated the work done in the different departments, criticised the show lists and recommended the encouragement of commercial fruit alone. In his exhaustive address the president discussed the vital matters up to which horticulture has come in Prince Edward Island, instanced the diffi-

culties that menaced it at present, and made many useful suggestions. He warmly recommended the establishment of high councils from the various associations which would meet at Ottawa and crystallise into salutary enactments the work of these conventions. There is certainly a gap now between the provincial organization and the enacting body which could be bridged over in this way effectively. As well as treating seed sellers in the way dishonest packers are treated under the Mark's Act, the Island Association demands the inclusion of fraudulent nursery stock and levels penalties at dishonest top grafters. The president's address was received and adopted unanimously and all its recommendations legislated on.

These are some of the papers read by local horticulturists: "Difficulties of Fruit Growing in P. E. I.," by F. C. Bovyer; "The Apples I Grow at Inkerman," by John Robertson; "Cherry Growing," by D. J. Stewart; "Cranberry Culture," by C. R. Dickey; "The First Island Peaches," by Dr. Murchison; "Our Best Commercial Sorts," by Senator Ferguson; "My Experience With Plums," by Edward Bayfield; "Our Model Orchards," by Prof. Macmillan; "Inspection in P. E. I.," by D. F. I. Burke; and "Strawberry Problems," by Franklyn Bovyer.

The visiting scientists, however, added much to our island meetings. We had Prof. Robertson, a host in himself; Prof. Zavitz, whom one enthusiastic admirer called "the man with the hard name," although his lessons are easy and splendidly put to his audiences, that on "Clover Growing" being particularly opportune; Prof. Macoun, modest as ever, yet accurate and well posted on everything, and Mr. Harold Jones, of Maitland, Ontario. The others expected could not brave the dangers of winter communication. Prof. Robertson, whom nothing deters from fulfilling an engagement, crossed in the open boats at the Capes

in zero weather. He was sorry he did not take the Roman at his word and "lend him his ears." Jack Frost is no respecter of persons.

As most readers of the Horticulturist have heard in one form or another the Commissioner's great address on "Education for the Improvement of Agriculture and Horticulture," I shall say nothing further here than to record the common opinion that it is unmistakably the best of his many good addresses and more likely to make itself felt on the life of the country.

The fruit show in connection with these meetings was beyond all expectations, successful. Room could with difficulty be found for all the specimens. The lists were restricted for good reasons to the following:

1. Best county collection of not less than 10, or more than 20 varieties.
2. " Ten varieties of commercial apples.
3. " Five varieties of winter apples.
4. " Plate Baldwins.
5. " Plate Banks.
6. " Plate Blenheim.
7. " Plate Ben Davis.
8. " Plate Fallawater.
9. " Plate Golden Russet.
10. " Plate Gravenstein.
11. " Plate Kings.
12. " Plate Mann.
13. " Plate Nonpareil.
14. " Plate Ontario.
15. " Plate Ribston.
16. " Plate R. I. Greening.
17. " Plate Red Russet.
18. " Plate Spy.
19. " Plate Stark.
20. " Plate Wagener.
21. " New and promising Commercial Apple.
22. " New and promising Dessert Apple.
23. " Plate Pears.
24. " Plate Cranberries.

25. Best Barrel of Apples.
26. " Box of Apples.
27. " Packer of Apples in barrels.
28. " Packer of Apples in boxes.
29. " Collection of Bottled Fruits.
30. " Collection of native tree seeds for windbreaks.

But many other varieties were in evidence. The diploma of the Association was a pretty work of art, with the scriptural text, "Be of good courage and bring to us of the fruits of the land," a particularly opportune injunction. The Ontarions remarked admiringly on the color and flavor of our fruit. "The best flavored apples in America are island apples," averred Prof. Robertson. Chief McKinnon, of the Inspector's Department, declares that the "Innerkip box" for apples, made and packed by the veteran orchardist of the province, John Robertson, of Inkerman, is easily the best package on the British market. These assurances encourage us when they are superadded to the knowledge which is everyone's now, that we can grow good fruit; that we pack it honestly; that the great market of Britain is nearer to us than our sister provinces, and that we have golden prosperity ahead of us.

For 1903 the officiality of the F. G. A. is about as last year. The president, your humble correspondent, would gladly have retired in some one else's favor, but could not refuse an honor so heartily conferred in the good of the cause. The constitution has undergone slight change. The secretary is now secretary-treasurer and the servant of the board of directors. Of the old body Messrs. Irving and Wells are replaced by Messrs. F. L. Haszard and A. J. McFadyen. The vice-president is still that good friend of horticulture, John Johnson, of Long River. We look for great things for our association and what it stands for in these years.

Alberton

A. E. BURKE.

NEED OF A RAILWAY COMMISSION

IT was a strong delegation that waited on the Dominion Government on Wednesday, the 11th of February, to ask for a railway commission, which should have power to regulate and control railway rates. The case of the fruit growers was ably presented by Mr. W. H. Bunting, the President of our Association, who pointed out that the railway companies had looked upon fruit as a luxury and not one of the necessities, and had put up the rates upon this class of goods to the very highest notch.

For example, said Mr. Bunting: "On 2,500 baskets of Niagara-grown peaches, shipped to points east of Toronto, mainly Montreal, the carrying charges by express were over 50 per cent. of the price received by the grower. The transportation companies received $13\frac{1}{2}$ cents per basket for carrying, while the growers netted $8\frac{3}{4}$ cents per basket. When you reflect that the growers have all the risk of seasons, all the expenditure for help, and all the waiting for the crop to grow, I think you will agree with me that the proportion received by the carrier, as compared with that received by the producer, is altogether unfair."

FRUIT DISCRIMINATED AGAINST.

Mr. H. W. Dawson, of Toronto, speaking of the unfair rates on fruit compared with other products, said:

"Fruit is discriminated against to the extent of 200 to 500 per cent., as compared with other commodities. Why is this? The railways say it is because the fruit receives better care in the carrying; but I have followed shipment after shipment and have never yet found apples receive more care or attention than other classes of fruit. As an illustration, I might mention one case. There was shipped from Grimsby on the 30th November three carloads of apples. At the

time of the shipment the shipper asked that cars be provided for shipping to Boston. The railway refused cars to Boston, but tendered cars to St. John. The understanding was that the fruit was to be put on board a steamer announced to sail from St. John on the 14th of December. The ship did not sail on the 14th of December; she did not sail until the 14th of January, and all that time the apples lay at point of trans-shipment exposed to the severe weather. The shipper was not notified of the delay, and had no opportunity of protecting his fruit; in fact, the first intimation he had of the delay was when a cable was received from England on the 6th of January asking what had become of the apples. On that one shipment over \$1,000 was lost. The fruit was frozen and did not even realize the amount of the freight."

In illustration of the discrimination between fruit and other products, Mr. Dawson compared the case of flour and apples. "You can," said he, "get a rate of $13\frac{1}{2}$ cents per cwt. on flour to the seaboard, while the rates on apples is $23\frac{1}{2}$ cents. These are the rates for export in both cases."

Mr. D. J. McKinnon emphasized Mr. Dawson's statements and called attention to the fact that the freight rate on flour to the seaboard represents six per cent. of the value of the goods, the rate on apples $23\frac{1}{2}$ per cent., the rate on mixed fruit 44 per cent., and the rate on grapes from Ontario to the seaboard was 55 per cent. of the value of the product carried. "We are," continued Mr. McKinnon, "under a great handicap in sending fruit to the far east and the far west. The rates on such shipments are really more than the traffic will bear. Were these rates reasonable, we could produce fruit enough to supply every consumer in our own country at a reasonable price. We should be

placed in a position to do this, because fruit to-day is not a luxury, but really a necessity."

THE GENEAL STATEMENT.

The whole matter was summed up and finally presented in the following form, which was written out and left with the Premier, and we hope it will be the means of bringing us some relief from the present injustice in freight charges, which is crippling our industry and preventing the proper development of the fruit industry:

"The request for a systematic readjustment of the railway freight rates now charged in this country is based upon these general statements:

"1. Rates on short hauls within Canadian

territory are in many cases so high as to be practically prohibitory.

"2. Rates on long hauls also within Canadian territory do not in many cases bear fair proportion either to the cost or value of the service rendered.

"3. Rates on local Canadian traffic are in many cases much higher than rates under similar conditions on local traffic in the United States.

"4. On traffic originating in the United States and carried over Canadian lines to the seaboard, the rates are in numerous instances not only relatively but actually lower than the rate imposed on Canadian produce carried over the same lines but for a shorter distance."

GRAFTING APPLE ON THORN

BY

A. K. GOODMAN,

SECRETARY CAVUGA HORTICULTURAL SOCIETY.

I HAVE made several attempts at grafting apple and pear scions on the common thorn with marked success. Following the directions given in the Canadian Horticulturist as to the preparation of the grafting wax, I adopted this method. Scions with two buds were taken in the spring just before the trees burst into leaf; the thorn was then cut off with a saw to within a foot of the ground; a slit was made in the top and held open by a wedge, the scion cut in a reverse manner and inserted so that the space between the inner bark and wood of each exactly met and formed an unobstructed avenue for the circulation of the sap of the stock through the scion; the junction was then covered with the grafting wax and covered with rough canvas and tied until the wound was healed. The photograph shows the graft of an apple (Northern Spy) on thorn, four scions, with its growth of

three feet and over at the end of the first season, before pruning. The pear grafts made an equally vigorous growth, while the second season the results were quite as good.

GRAFTING WAX is made by melting together 2 lbs. resin, $\frac{1}{4}$ lb. beeswax and $\frac{3}{4}$ lb. of tallow.



FIG. 2572. APPLE GRAFT ON THORN.



APRIL NOTES FOR LAWN, FLOWER, VEGETABLE AND FRUIT GARDEN.

WORK ON LAWN—PRUNING SHRUBS—HARDY ROSES
—ROSE THRIP—FLOWER GARDEN—SEED SAVING—
VEGETABLES—ASPARAGUS—THE FRUIT GARDEN.

BY

WM. HUNT,

SUPT. GREENHOUSES, O. A. C., GUELPH.

LAWN PRUNING.—The first real spring work on the lawn will be such pruning of flowering shrubs and roses as may be considered necessary. with one or two exceptions all the pruning required by the smaller growing lawn shrubs, such as spirea, deutzia, weigelia, forsythia, etc., will consist of merely thinning out the most prominent branches so as to produce a natural, and at the same time a symmetrical looking shrub. Do not clip or shear off the young tips of growth, as is often done in the spring as well as later on in the summer. This young growth is the flowering wood of the present season, as a rule, and should not be trimmed off. One exception to this style of pruning, however, is that of pruning the

different varieties of lawn or hardy hydrangeas. With these latter the pruning should be severe, if it was not done late last autumn or in early winter. (I prefer the latter time for pruning hardy hydrangeas.) If not already done, prune the young shoots of these plants back to within three or four inches of the base of the young growth, leaving only three or four buds. By pruning severely in this way, and by cutting out altogether the small weak shoots on the plant, larger panicles of bloom will be the reward for this severe pruning. As the hydrangea paniculata grandiflora is one of the plants for distribution to members this spring, I might add that these plants, if the young growth is unpruned when received, would be very much benefitted by having the strongest

shoots cut back to within three or four inches of the old growth as before described, as well as by having the small weakly shoots entirely removed.

HARDY ROSES.—At the present date, March 11th, with exceptionally mild weather prevailing, it looks as if rose pruning would have to be done very early this spring. However, as a rule, the first week or ten days in April is early enough, especially in the northern sections of Ontario. Roses should be pruned just as soon as the buds show the slightest sign of growth. Prune bush roses severely. New shoots of these starting from near the surface of the ground should be cut back so that they are from fifteen to eighteen inches in height. Young shoots from old wood that is perhaps already nearly eighteen inches or more in height, should be cut back to within a few inches of the old wood. Thin out altogether the weak spindled growth as in the case of the hydrangeas. Bush roses are benefitted by severe pruning if the young wood only is pruned.

CLIMBING ROSES should not be pruned so severely. Thin out the very small weakly growth and cut the strong canes back to five or six feet in length. The length of these canes must very largely depend on the position they occupy. If on a trellis long canes can be left, if grown on stakes the canes should be pruned back more. About a pound of bone meal or a small quantity of hen or cow manure forked in around rose bushes or flowering shrubs at this season will help them considerably. The soil should not be forked over, however, until it has become fairly dry.

ROSE THRIP.—Do not forget that these little white pests, that devour and despoil the foliage of the roses later on in the summer, should be attended to early in the season. Give your rose bushes a sprinkling of strong tobacco water or tobacco dust as soon as the first leaves are developed. Don't leave it

until you see the thrip; it is often too late then. A very dry cigar powdered up fine makes a good tobacco powder for roses. Or pull a cigar to pieces, place it in a jar or dish, and pour about a quart of boiling water on it. Allow the solution to cool, when it can be sprinkled on the roses. This solution can often be obtained easily, when raw leaf tobacco or stems cannot be had to make the above solution. Sprinkle the bushes every week or ten days until the buds commence to open with the tobacco solution.

Any bare spots on the lawn should have a little fresh fine earth raked in on them and some lawn grass seed sown as early as possible. Roll the lawn as early as possible. Do not let it get too dry and hard before putting the roller on. Get your lawn mower sharpened early before the busy season commences.

All winter covering used for plant protection, as well as all dead foliage, etc., should be removed and burned as soon as the weather permits of this being done.

SEED SOWING.—Almost all varieties of flower seeds can be sown outside now, as soon as the soil is dry and in proper condition. Portulacca, nasturtium, balsam, cobea scandens and possibly poppies, would however be better if not sown until late in April or early in May. Sow all garden seeds when the soil is fairly dry, and not when it is wet and sticky. Sow sweet peas as early as possible, a little frost will not hurt them.

VEGETABLE GARDEN

ASPARAGUS.—Fork over the asparagus bed as soon as the frost is out, and the soil at all dry enough. Give the bed a good coat of salt afterwards. A bushel of salt to about every rod of ground will not be too much. Asparagus plants like salt, and it keeps down weeds as well as being a fertilizer. For a city or cottage garden asparagus is best grown in beds, but for the farm garden in long rows. Every farmer should have plenty of asparagus, if only for home

use. It is the earliest, most wholesome, and easiest grown of vegetables. It takes three or four years to get good asparagus fit for use from seed, but when once obtained it will last several years and give an abundant supply in April and May of good wholesome food. A good mulching of manure in the fall, and cultivation in the summer is all it needs when once established. A couple of rows about a hundred feet in length would provide sufficient of this vegetable for a large family. The seed should be sown as early as possible in spring in drills about one and a half inches in depth and about three or four feet apart. Conover's Colossal asparagus is about the best and hardiest variety. Two-year-old plants will give quicker results than seedlings.

PEAS, PARSLEY, ONIONS, PARSNIPS, LETTUCE, SALSIFY AND LEEKS should be sown as soon as the ground can be worked. Peas should be sown in drills and covered with about two inches of soil. Dwarf varieties, such as Gradus, Horsford's Market Garden, and Stratagem, are good varieties to sow. Sow these two feet apart between the rows. Parsnips should be sown in drills about an inch deep and eighteen inches between the drills. Onions, lettuce, parsley and leeks in drills about fifteen inches apart, covering the seed with about half an inch of soil. The drills for salsify should be eighteen inches apart, and the seed covered with about an inch of soil. Prizetaker and Danver's Yellow Onion are about the two best varieties of onions. The White Portugal is the best white onion. Sow these in drills one foot apart and cover the seed with about half an inch of soil. Onions like good rich soil. The Nonpareil, Gardener's Favorite and Early Ohio are three good varieties of lettuce. Sow in drills nearly an inch in depth and fifteen inches between the drills.

Leeks should be transplanted into well-manured shallow trenches when the plants are five or six inches in height. Put the plants six or eight inches apart, give them plenty of water in the summer, and mould the plants up toward fall. Potatoes can be planted late in April or early in May. Beans, beets, radishes and carrots should be sown early in May.

FRUIT GARDEN

STRAWBERRY PLANTS should have their winter mulch removed at once, if not already done. Fork between the rows and pick out all weeds as soon as the weather permits. About 1 lb. of nitrate of soda to every square rod of the strawberry patch, applied early in May, will prove a good fertilizer for an old patch. Sprinkle the nitrate of soda between the rows and not on the plants, as it might damage the foliage.

Prune all gooseberry and currant bushes at once, if not already done. It is rather late for pruning apple, pear and plum trees, but all dead wood and suckers can still be removed.

The dead wood should be cleaned out from the raspberry canes. Stake and tie up the strongest canes left. Top them back to from four to five feet in height. Cuthbert and Golden Queen raspberries are the two best varieties for home use. Fork between the rows before the ground gets hard and dry. A mulching of fairly short manure in May will help the crop of raspberries. Put the mulch on after the weed crop has started and been hoed down once or twice. By doing this before the mulch is put on very few weeds will appear until autumn.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL
SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED
IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR
CANADIAN TOWN AND COUNTRY HOMES.

WORK OF THE HAMILTON CITY IMPROVEMENT SOCIETY

BY A MEMBER.

THE PIONEER SOCIETY—THE BOYS AND GIRLS
INTERESTED—CHRONIC KICKERS—CO OPERATION
OF PRESS AND CLERGY—HOW TO PROCEED.

THE formation of a Canadian League for the object above specified comes not a moment too soon, the need of it being a crying one, not only in our cities and towns, but in our villages as well. Mr. Hayden, of Cobourg, who was elected president, desires great praise for the hard work he must have put in to bring such a representative gathering together as assembled in the Toronto Board of Trade Council Chamber on the 14th of February last. A great deal of the discussion which took place was of a very useless nature, but it perhaps cleared the atmosphere and enabled Mr. Alexander, of Hamilton, to put before the meeting a resolution of all the impending difficulties and settle the meeting down to transact the business for which they had been called together. To this gentleman are all horticulturists indebted in the past for valuable advice given, and he has also proved himself one of the most forward members of the Hamilton City Improvement Society, the first of its kind in the Dominion of Canada. This society was formed in June, 1899,

for the purpose of promoting improvement, cleanliness, and beautifying of the city, and to assist and stimulate the authorities in enforcing the laws relating thereto. From its inception the society has made a point of "helping," not "abusing," the authorities, and in this way has made friends of the aldermen and all the officials of the City Hall. Requests from the society to any of the departments receives careful attention, and no demands for a large outlay of money has ever been made; but notwithstanding this fact many little changes have taken place tending toward the comfort and convenience of the public. People in Hamilton are now beginning to realise the good objects the Improvement Society has in view, and the thorough unselfishness of these objects. They are beginning to see that interest in this direction makes better citizens of people, raises the moral tone of the community, especially amongst our boys and girls, and the older hard headed fellows are coming to the conclusion that a forward movement of this kind must enhance the



FIG 2573. AN ATTRACTIVE FOOTPATH IN A PARK.

value of real estate, a most important factor in this money-making age. At the start the Hamilton society had the usual kicker, or better, perhaps, the "chronic kicker" rapping it over the knuckles, dubbing its members faddists, etc., but that is now a thing of the past, and it is supported by rich and poor alike. A glance over the names of the executive committee convinces one it is the most representative one in the city, composed of busy, active men, having the interest of the advancement of Hamilton in every way very much at heart. The foregoing remarks may be well considered by societies just forming, and it would be well for them all to go easy at the start, not attempting too many reforms, not being intrusive, and not forming too high ideals. The press in Hamilton has been of great assistance to the workers. Always have they found it ready and willing to aid in every possible way. Make confidants of the editors, and you are always sure

of good returns. The clergy have also materially assisted city improvement, not only in committee, but in active work during the flower competitions. At the same time our churches and schools could have set a much better example than they have done in making their surroundings more pleasant to the passerby. However, better things are hoped for in the future, through this medium. To make improvement societies a success you must have the enthusiast; he must be at your meetings, and he must be on your committees, and in selecting the latter get as many of the busy men of your community on them as possible. They are the ones who usually have the most time at their disposal for the public good. A good secretary is an indispensable attachment. Don't get a machine. He must be a man of some initiative, and when you get such a one don't put too much on his shoulders. Interest as many as you can to assist him.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

THE PLANTS will be sent out during this month. Renewals for 1903 should therefore be sent in at once, with choice of plant, whether hydrangea, sweet syringa or spiraea. Englose \$1.00 to the secretary, Mr. G. C. Creelman, Parliament Buildings, Toronto.

VOLUMES FOR BINDING should be sent in to Mr. G. C. Creelman, accompanied by cash, 40 cents, for which they will be beautifully bound in cloth, green and gold, and returned free of postage. We have also a fine stamp for the sides and back. For gilt edge leaves, 10 cents extra.

LECTURE COURSE FOR OUR HORTICULTURAL SOCIETIES.

FOR THE ENCOURAGEMENT of all our affiliated horticultural societies, Mr. G. C.

Creelman, our efficient secretary has arranged the following schedule of lectures on horticultural topics. If any societies are omitted it is because they have failed to accept the offered lecture, which costs them practically nothing. Where possible, it will serve to popularise the evening lecture and at the same time make the lecturer's visit doubly useful, if a mass meeting of the schools can be held at 3 p.m. of the same day, to hear an address especially adapted to students. No doubt, wherever a Civic Improvement League is affiliated, a lecture might be secured for them also.

Division No. 1.

Delegate—T. H. Race, Mitchell, Ont.
Subjects:

1. The Rose, its Cultivation and Influence Upon the Home.

2. Nature Study in the Garden.
3. The Influence of Floriculture on Child Life.
4. The Social and Moral Influence of the Home Surroundings.
5. Bulb Culture and its Attractions.
6. The Work of the Horticultural Societies.

DATE.	SOCIETY.
March 31.....	Bowmanville.
April 1.....	Millbrook.
" 2.....	Lindsay.
" 3.....	Peterboro.
" 4.....	Stirling.
" 6.....	Picton.
" 7.....	Napanee.
" 8.....	Cardinal.
" 9.....	Woodstock.

Division No. 2.

Delegate—Wm. Hunt, O. A. C., Guelph.

Subjects:

1. The Propagation and Care of Window Plants.
2. Hardy Border Perennials.
3. Planning and Planting the Home Grounds.

DATE.	SOCIETY.
March 30.....	Toronto Junction.
" 31.....	Grimsby.
April 1.....	St. Catharines.
" 2.....	Niagara Falls.
" 3.....	Hagersville.
" 6.....	Tilsonburg.
" 7.....	Simcoe.
" 8.....	Port Dover.
" 9.....	Aylmer.

Division No. 3.

Delegate—T. H. Race, Mitchell.

DATE.	SOCIETY.
March 16.....	Seaforth.
" 17.....	Kincardine.
" 18.....	Mount Forest.
" 19.....	Walkerton.
" 20.....	Owen Sound.
" 21.....	Elora.
" 23.....	Elmira.
" 24.....	Waterloo.
" 25.....	Hespeler.
" 26.....	Brantford.
" 27.....	Paris.
" 30.....	Cayuga.

SPRAY CALENDAR—PART No. 1

DIRECTIONS FOR TREATMENT OF
INSECT PESTS AND PLANT DISEASES.

BY

PROF. WM. LOCHHEAD,

OF O. A. C., GUELPH.

1. BORDEAUX MIXTURE—(For Fungous Diseases). Copper sulphate (bluestone), 4 pounds; lime (fresh), 4 pounds; water, 40 gallons. In making this mixture, observe the following precautions and directions: 1. Use nothing but fresh quick-lime. The lime should be slowly slacked by the gradual addition of water. For convenience stock

solutions of milk of lime and bluestone should be prepared and kept in different barrels in readiness for spraying operations. In barrel No. 1, 25 pounds of fresh lime are gradually slaked, and barrel made up to 25 gallons of water; in barrel No. 2, 25 lbs. of copper sulphate, or bluestone, are dissolved in 25 gallons of water. For rapid dissolv-

ing use warm water. These are the stock solutions. Each gallon of milk of lime contains one pound of lime, and each gallon of bluestone contains one pound of bluestone. When we wish to make up a barrel of Bordeaux mixture we take out 4 gallons of milk of lime and 4 gallons of bluestone solution, and either dilute each in separate barrels in 20 gallons of water before mixing in the barrel attached to the spray-pump, or else pour each separately into the barrel in which are already 32 gallons of water. The first method is the preferable one. 2. Never mix the concentrated stock solutions together. If the milk of lime and bluestone are mixed in the concentrated form, just as they are taken from the stock solution, a precipitate of a flakey nature will soon settle out, and either fall to the bottom or clog the nozzle. 3. Test the Bordeaux to find out whether sufficient milk of lime has been added. This is most easily done by means of the ferrocyanide test. A saturated solution of this substance can be purchased at any druggist's for a few cents. In testing, place some of the Bordeaux, which has been thoroughly stirred, into a saucer, and add a few drops of the ferrocyanide. If sufficient lime has been used, no discoloration will appear, but if insufficient, a deep bark brown color will be produced. 4. Always strain the milk of lime to prevent gritty particles from clogging the nozzles. 5. Use a fine nozzle; do not soak or drench the tree. 6. The stock solutions will keep, but the Bordeaux mixture becomes useless after standing for a day or two.

2. THE COMBINATION BORDEAUX AND PARIS GREEN MIXTURE—(For Fungous Diseases and Leaf-Eating Insects). This mixture is prepared like the Bordeaux, but 4 ounces of Paris green are added and thoroughly stirred before spraying. Copper sulphate (bluestone), 4 lbs.; quick lime (fresh), 4 lbs.; Paris green, 4 oz.; water (1 barrel), 40 gallons. In small quantities it may be

made as follows: Bluestone, 4 level tablespoonfuls; quick lime, 4 level tablespoonfuls; Paris green, 1 level tablespoonful; water, 1 pail (2 gallons).

3. COPPER SULPHATE—(Bluestone or Blue Vitrol). For destroying mustard or charlock or Herrick in grain fields. Copper sulphate, 9 lbs.; water (1 barrel), 45 gallons. This quantity is sufficient for an acre.

4. AMMONIACAL COPPER CARBONATE SOLUTION.—Copper carbonate, 1 oz.; strong ammonia sufficient to dissolve the copper carbonate, usually more than $\frac{1}{2}$ pint; water, 10 gallons. This solution is not much used, and is recommended only in cases where the fruit is so far advanced that it would be disfigured by using the Bordeaux mixture.

5. POTASSIUM SULPHIDE—(Liver of Sulphur). Used to control gooseberry mildew. Dissolve 4 oz. in 8 gallons of water.

6. PARIS GREEN MIXTURE—(Liquid). For leaf-eating insects. Paris green, 1 lb.; water, 150 gallons; lime, 2 lbs. freshly slacked; or, Paris green, 1 teaspoonful (level); water, 1 pail (2 gallons); quick lime, 1 teaspoonful (level). Paris green mixture—dry: Paris green, 1 lb.; flour or dust, 100 lbs.

7. POISON BAIT—(For Cutworms, Wireworms and Grasshoppers in gardens and cornfields). Wheat bran, 50 lbs.; molasses (any kind), 2 quarts; Paris green (good grade), 1 lb.; water, enough to make a thick mash. Handfuls of the bait are scattered about the garden at the base of the plants and among the corn rows in the evening.

8. HELLEBORE—White hellebore (fresh), 1 oz.; water, 2 gallons.

9. PYRETHRUM, or Insect Powder—Pyrethrum powder (fresh), 1 oz.; water, 3 gallons. Or, Pyrethrum powder, 1 oz.; flour (cheap), 5 oz. Mix thoroughly, allow to stand over night in a closed box, then dust on plants through cheese cloth. Recommended for green cabbage worm.

10. KEROSENE EMULSION—(For Bark lice

and Plant lice). Hard soap, $\frac{1}{2}$ lb., or soft soap, 1 quart; boiling water (soft), 1 gallon; coal oil, 2 gallons. After dissolving the soap in the water, add the coal oil and stir well for 5 to 10 minutes. When properly mixed it will adhere to glass without oiliness. A syringe or pump will aid much in this work. In using, dilute with from 9 to 15 parts of water. Kerosene emulsion may be prepared with sour milk (1 gallon, and coal oil (2 gallons), no soap being required. This will not keep long.

11. TOBACCO DECOCTION—Refuse tobacco, 2 lbs.; water, 5 gallons. Boil the mixture for 30 minutes or more, until a dark brown tea-colored solution is obtained. Keep it covered until cool. It may then be used undiluted for spraying infected plants.

12. WHALE OIL, SOAP—For Plant Lice: 1 lb. in 7 gallons hot water. For San Jose Scale in winter: 2 lbs. in 1 gallon hot water applied as the buds are swelling.

13. SOAP SOLUTION—For plant lice on house plants a 5c. cake of soap in 4 gallons water.

14. CRUDE PETROLEUM—(For San Jose Scale in early spring). A 20 per cent mechanical emulsion applied by a combination emulsion pump to invested trees just before the buds start. (To be done by an experienced person.)

Using Traceless Harness.

Innovations on old established ways of doing things necessarily proceed slowly. If we did not know this to be true it would be difficult to see why the hitching of teams to their loads without whiffletrees or traces by the Baker Traceless Harness advertised in our columns should not spring quickly into general use. This traceless harness has many things to commend it. We might instance a freer movement on the part of the team, saving in weight, simplicity in harness and hitching, short turning, getting closer to the load, comfort in hot weather, etc. It is particularly adapted to the plow, harrow, cultivator, scraper, log drawing, in fact all kinds of low-down work. The uninitiated might have misgivings of side draft, or added weight upon back or neck. The reverse is the case. It affords a straight square draft from the shoulder, without twisting. The great point of merit, however, lies in the doing away with the nuisance of swinging traces and whiffletrees, which

14 (a). CRUDE PETROLEUM—WHALE OIL SOAP EMULSION... Recommended for San Jose Scale and other hibernating insects. Crude petroleum, 2 gallons; whale oil soap, 5 lbs. dissolved in $1\frac{1}{2}$ gallons of boiling water. Churn thoroughly for 5 minutes or more, and add water to make 10 gallons.

15. WASH FOR BORERS—First, add soft soap to a saturated solution of washing soda to make a thick paint, then add 1 pint crude carbolic acid, and $\frac{1}{2}$ lb. Paris green to 10 gallons of wash. To be applied to the trunks of apple and maple shade trees in early June.

16. LIME WASH—(For Oyster-shell Bark Lice, etc). Slake $1\frac{1}{2}$ lbs. fresh lime in 1 gallon of water. Strain the wash before spraying. To be applied during winter to trees infested with oyster-shell bark lice.

17. FORMALIN—(a) For Potato Scab: 8 oz. or $\frac{1}{2}$ pint in 15 gallons water. Soak seed potatoes in this solution for two hours. (b) For Smut in Oats and Wheat: 8 oz. or $\frac{1}{2}$ pint in 5 gallons water. Sprinkle thoroughly the seed with this solution.

18. CARBON BISULPHIDE—(For Weevils in Peas and Grain). 1 lb. or 1 pint for every 100 bushels of grain, or 1,000 cubic feet of space. Liquid placed in shallow dishes on top of grain or peas.

are so frequently the cause of annoyance, and giving free access behind and on both sides of each horse when hitched to load. To the fruit culturist its advantages are first apparent. Here it has been most widely adopted, and has a special use in the protection afforded trees shrubs and vines. But the advantages for many other farm purposer are almost as great. Any one interested should write the manufacturer at the address given in the advertisement for his circular, which sets forth the advantages in detail.

NORTHERN GROWN TREES

Hardy Fruit and Ornamental Trees,
Small Fruits, Roses, Shrubs, cheap.
Mammoth Prolific Dewberry a specialty.
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PORT ELGIN, ONTARIO.

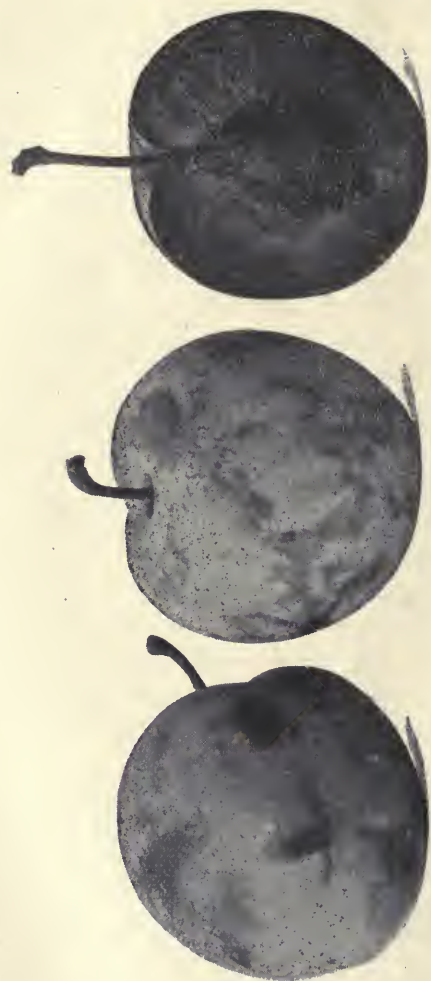


FIG. 2574. GREEN GAGE.

THE CANADIAN HORTICULTURIST

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VOLUME XXVI



NUMBER 5

GREEN GAGE

THE Green Gage is a good representative of a very important group of domestic plums, which is both very ancient and very desirable. Other well known varieties of the Green Gage group are Reine Claude, Imperial Gage, McLaughlin, Jefferson, Washington, General Hand, Peter's Gage, Golden Gage, etc.

In Ontario the most popular variety of the Green Gage group of plums, especially for cooking purposes, is the Reine Claude de Bavay, commonly known among us as Reine Claude; but in the catalogue of the American Pomological Society called Bavay. The fruit of this plum is larger than that of the Green Gage; the tree is a stronger grower and hence perhaps better suited to the commercial orchard, but in quality no one of the group excels this old typical kind, the Green Gage.

Dr. Robert Hogg, author of the "Fruit Manual" of Great Britain, gives the following history of the origin of this plum:

This universally known and highly esteemed fruit has been longer in this country (England) than has been generally supposed. It is said to have been introduced at the beginning of the last century by Sir Thomas Gage, of Hengrave Hall, near Bury St. Edmunds, who procured it from his brother, the Rev. John Gage, a Roman Catholic priest, then resident in Paris. In

course of time it became known as the Green Gage plum. In France, although it has many names, that by which it is best known is *Grosse Reine Claude* to distinguish it from a smaller and much inferior plum called *Reine Claude Petite*. The Green Gage is supposed to be a native of Greece, and to have been introduced at an early period from Italy, where it is called *Verdochia*. From Italy it has passed into France, during the reign of Francis I., and was named in honor of his consort, Queen Claude. Shortly afterwards it found its way into England under its original Italian name, *Verdochia*, from which we may infer that it was brought direct from Italy. It is mentioned by Parkinson in 1629 under the name of *Verdoch*, and from the way in which he speaks of it, it seems to have been not at all rare, nor even new. Even so late as the middle of the last century, after it had been reintroduced and extensively grown under the name of Green Gage, it continued to bear its original title, and to be regarded as a distinct sort from the Green Gage.

If any of our readers is making a selection of plums for his home garden, we would advise him not to omit a tree of the Green Gage for kitchen uses; or, if he wishes to combine both kitchen and market purposes, then let him plant the *Reine Claude*.

The Green Gage tree is not a rapid grower, but it is healthy and fairly productive. The fruit is smaller than *Reine Claude*, and must be thinned to make it reach a proper size. The skin is greenish, yellowing toward ma-

turity; the flesh is pale green in color, and the texture melting and juicy; the flavor is rich, sweet and agreeable. In season it is earlier than Reine Claude, coming in about the middle of August.

OPINIONS OF OTHERS.

HAROLD JONES, Maitland (St. Lawrence District):—The Green Gage plum has not proved generally satisfactory in this section. Trees that I planted in 1897 are partly dead, and have never blossomed. They suffered during the winter of 1902. I know of two trees that are protected by buildings from the north wind that have given good crops of fruit in favorable years; but generally speaking, the Green Gage is an uncertain cropper here and not profitable.

My experience and observation teach that European plums are generally unsatisfactory in this latitude, but some plums of the native American class are of good quality and succeed well.

A. E. SHERRINGTON, Walkerton:—The Green Gage plum is hardy and productive here, but in my opinion not as valuable as the Imperial Gage.

J. G. MITCHELL, Clarksburg:—The market demands large and showy fruit, and the

Green Gage, being rather small, has always sold at a low price here. Where the Reine Claude succeeds, which is really a large Green Gage, I think there is little use in growing the small Green Gage.

W. M. ORR, Fruitland:—We do not grow the Green Gage. Although the quality of the fruit is good, I consider it too small, and the tree is a poor grower. I prefer the Imperial Gage, of which the fruit is large and of good quality, and the tree vigorous and productive.

CHARLES ELLIS, Meaford:—Very few Green Gage plums are grown about here. The Reine Claude is often sold under that name; but the true Green Gage is small and not very productive so far as I have seen it, but it is very good for home use.

CHARLES LOWRY, Queenston:—The Green Gage is highly esteemed both as to productiveness of tree and quality of fruit; but the sale is limited. Every year I think the price of plums grows less, and unless some foreign market opens for them it seems to me there is little hope for plum growers.

F. G. STEWART, Homers:—The Green Gage is considered the best canning plum, and we get more for it at the factories than for any other. For home use it is superseded by the Reine Claude.

Editorial Notes and Comments

PLUM GROWING.

UNDER the auspices of that progressive body of fruit growers, the Niagara Peninsula United Fruit Growers' Association, a splendid meeting was held in the Town Hall, Stoney Creek, on the 12th March. The President, Mr. D. J. McKinnon, of Grimsby, occupied the chair, and the principal speaker was Mr. J. S.

Woodward, of Lockport, one of New York State's foremost teachers of advanced methods in fruit growing.

CONSCIENCE AND FRUIT GROWING.

IN Mr. Woodward's opinion fruit growers might be divided into two classes. (1) Those who grow fruit for fun; (2) Those who grow it for money. The first class

may, of course, plant whatever varieties please their fancy, but to the latter class he had some advice to offer. He had no sympathy with men who had no conscience in their business so long as it paid in dollars and cents; who would grow fruit to sell which they knew was unfit to eat; who grew Kieffer pears, for example, and sold them on their exterior appearance, knowing the buyer would be cheated in his purchase.

Kieffer pears often do not bring 10 cents a basket in Philadelphia market, for in that city their real value is beginning to be known; and the worst is not yet, for there are immense orchards of this variety coming into bearing, and shortly there will be more Kieffer pears than can be sold at a paying price. "I had the first Kieffer pear orchard in Western New York," said he, "and might have been a rich man if I had at the beginning planted it largely, but to-day I have not twenty Kieffer trees, and shall never plant another." He thought perhaps the Kieffer would make a good stock on which to top graft the Bosc.

PROPER SOIL FOR PLUMS.

ONE of the frequent mistakes made by beginners when planting an orchard is in the choice of soil. They plant a plum orchard on light sand, a soil quite unsuited to the plum, and then when the trees never give paying crops they say plum culture is unprofitable. Probably sandy loam encourages too great wood growth, while a clay soil gives but moderate wood growth and throws the tree into fruit bearing. In some parts of the Niagara district we have a sandy loam at the surface and a clay sub-soil; and on such soils excellent plum crops are produced, the roots of the trees reaching down into the heavier ground beneath, thus affording excellent conditions. In Mr. Woodward's opinion the ideal soil for the plum is rather heavy, with a good proportion of clay, and not too wet. Thomas ad-

vises applications of potash and ground bone to increase the fruitfulness of the plum tree.

SOURCES OF TREE NOURISHMENT.

WE too little consider the great importance of the foliage in tree growth. The great bulk of the carbon which enters into the woody structure of the plant is taken in directly through its leaves. What the stomach and lungs are to animals, those delicate complex organs, the leaves, are to the trees. They, however, act the reverse of the process of animal breathing, for they purify the air for us, taking from it the carbonic acid gas, and restoring its oxygen, under the wonderful influence of the sunshine.

Mr. Woodward emphasized this point, showing the importance of using insecticides and fungicides in order to keep the foliage healthy and intact, so that it might fully perform its natural functions. In speaking of the mineral elements taken up from the soil, he explained how necessary it was that they should be available, for, as he expressed it, "all plants and trees are soap eaters," and must have their food in a soluble form.

BIG PLUMS PAY.

SLOWLY but surely we are learning the lesson that it does not pay to grow small second class fruit of any kind. We are losers in two ways by it, (1) in the low price received for the second class article, and (2) in the exhaustion of our trees and our soil. This last point is seldom considered, but it is true that it requires more nourishment from the soil and is more exhaustive to the vitality of a tree to produce a basket of small sized plums or peaches than a basket of large sized ones; and the reason is that it is the seed that takes the strength of the tree and not the flesh.

Mr. Woodward put this very strongly at the Stoney Creek meeting. "What I want

to sell," said he "is the water, which does not cost me anything. The flesh of my plums is nearly all water, while the pit contains 4 per cent of mineral matter. There is a law against selling water and calling it milk, but there is no law against selling water in the shape of fruit, and the more you can get in it the better the buyer is pleased. We want *big fruit*, the *bigger the better*." The way to get it was to give attention to all cultural details, e. g., we must *spray* to keep the foliage clean—he would use Bordeaux, $\frac{1}{4}$ strength for plum trees, and do it thoroughly; we must *cultivate*; we must *feed*; plums will take any quantity of manure, it will not hurt them. Mr. Woodward had picked six consecutive crops of Bradshaw off the same trees while most people only took a crop in alternate years. He fully expected another crop in 1903; he did not expect to skip any fruit season; and what was the explanation? It was *high manuring*. He applied eight or ten loads of stable manure an acre every year, and it paid him well. We must also *prune*; the branches and twigs must not grow so thick as to exclude the sunlight, so they must be well separated; and then they must be cut back annually to prevent a sprawling habit. And we must *thin*. By this thinning he had raised Bradshaw plums—well "not quite as big as my fist," said he, "but very near it."

By attention to these details we can grow plums that will bring high prices. Size has a wonderful effect upon the price. "Last year," said Mr. Woodward, "my Bradshaw plums brought me 60c. a basket, and a neighbor's Bradshaws only brought him '6c. a basket! What made the difference? Just the size."

DISTANCES TO PLANT FRUIT TREES.

THERE has been a tendency among fruit growers to plant trees too close together. Some have planted apples 25 or 30 feet apart; cherries, plums and pears, 15

feet; peaches, 12, and dwarf pears, 10. There may be some varieties of less vigorous habit that will flourish at such distances, with close pruning. Indeed, we all know about the miniature old trees of the Japanese gardens, and the possibilities in this direction. Mr. Brennan, of Grimsby, has his peach trees 12 feet apart, and gives them such close and constant shortening in that he has excellent results, and is an ardent advocate of his system. But in general practice close setting is a serious mistake, for in after years when the trees reach full maturity, unless much greater attention is given to pruning than is usual among fruit growers, the orchard will be a tangle, into which the owner can neither get his wagon or his spray pump; and into which the rays of the sun can scarcely penetrare.

Generally speaking, the following distances are advisable: Apples, 40 feet; pears (standard), peaches, plums and cherries (sweet), 20 feet; sour cherries, 15 feet; dwarf pears, 12 feet. Of course this general rule must be varied in some cases; for example, we know of a row of magnificent Flemish Beauty pears at Mr. E. C. Beman's place at Newcastle, each of which covers an area much greater than 20 feet in diameter; but this has a more spreading habit than most varieties.

Mr. Woodward plants his plum trees 20 feet apart each way, and he considers it a great mistake to plant trees too close together. "They need to have the sunshine on the *ground* itself between the trees," was his way of putting it.

VARIETIES OF PLUMS.

THE Bradshaw seemed to be Mr. Woodward's great favorite. Among other varieties he mentioned Reine Claude, Grand Duke, Felleberg, Monarch, Arch Duke and Prince Englebert.

What do you think of the Red June? we asked.

"I have no use whatever for the Japans," said he. They are not good enough in quality, and he had found them almost as subject to yellows as the peach. He had considerable experience with them, but it was all unfavorable. He had tried an orchard first of Abundance, and then of Burbank, but had finally rooted them out entirely.

In growing Reine Claude he had found it apt to die of severe cold when root grafted or budded in the nursery, and thus having its own trunk. He much preferred this plum top worked on the Lombard, which gives it a good healthy body.

PLUM ROT.

How do you destroy plum rot?

In reply to this question Mr. Woodward stated that he began by gathering all the mummy plums found remaining on the tree in early spring, and burned them up. Then he sprayed his trees with weak Bordeaux, say 2 oz. to 50 gallons of water.

Would it answer to plow them under?

No; not nearly so well. They should be burned up, and thus the spores will be totally destroyed. Some varieties are much more subject to rot than others, and he had given up growing certain varieties, particularly the Washington, on this account.

LIME AND SULPHUR.

MR. WOODWARD would make this without boiling, by using caustic potash; and so far as tested it was just as effective as the boiled mixture. The same proportions of lime and sulphur were used; the lime was put to slake with hot water, and the sulphur added while slaking. After this was done, one-half pound of potash or one pound of caustic soda was added to every pound of sulphur. We were all much interested in hearing of any simpler method of making this valuable lime and sulphur wash than by the troublesome method of boiling, even if a threshing engine be convenient.

SMALL HOSE BEST.

ORDINARILY the spray pump makers provide a hose altogether too large. The smallest usually furnished is $\frac{1}{2}$ inch, and when one has high trees to reach the weight of hose is unnecessarily heavy. Mr. Woodward never uses a hose larger than $\frac{3}{8}$ of an inch in diameter. He elevates it by means of a bamboo pole, to the top of which he wires the hose, and continues it down for four or five feet. This he finds much more convenient than using the extension rods furnished by the pump makers.

SHALLOW CULTIVATION IN SUMMER.

CONSTANT cultivation was advocated by Mr. Woodward to open up soil to influence of sun and air, and to conserve its moisture by a shallow dust mulch all summer.

How deep would you cultivate in summer?

"I would not stir the soil more than two inches below the surface," said Mr. Woodward. "Just deep enough to keep down the weeds. I would not use a plow at all in an orchard if I could avoid it, but when necessary I would use a four-furrow gang plough early in the season." Deep ploughing, especially when the trees are in full leaf, cuts off millions of those little feeding roots which take up soil nourishment, and which should not be disturbed at that season. These are of annual growth, and so small that they escape the notice of the ploughman, but it is these tiny root hairs that are essential to tree and plant growth, and not those great branching underground stems which serve merely to anchor the tree and enable it to stand against wind and storm.

WORK OF THESE ROOT HAIRS.

TO discuss these minute organisms the aid of a pocket magnifier is needed. They form in the growing season in great numbers, developing just behind the root

tips. They are so delicate and easily broken that the soil about them needs to be removed most carefully, which can be done easier if it is sandy; then with the glass these silky light root hairs may be seen filling the fine pores of the soil or enveloping its particles.



FIG. 2575. ROOT HAIRS.

- I. Roots of a young wheat plant.
 - (a) The sand surrounded by root hairs.
 - (b) Root tips.
- II. Turnip seedling showing root hairs. (After Frank and Tschirch.)

The principal function of these root hairs is to absorb water from the soil and the plant food it contains; and as the plant grows these multiply with such rapidity that they wonderfully increase the absorbing surface of the roots. Each of these rootlets is but a single plant

cell filled with that element of plant life called protoplasm; and, besides absorbing the moisture from the soil, they have the wonderful faculty of so dissolving much of the mineral matter in the soil by their excretions as to render it available by the plant or tree. Our illustration is drawn by Frank and Tschirch from wheat and turnip root tips as they appeared under a microscope. They will help to give our readers a fair idea of these wonderful little root hairs.

A GOOD TOOL FOR THE ORCHARD.

THERE is no doubt that we in Ontario are still behind the times in respect to the tools used for orchard work. Many still

cling to the old-fashioned square tooth harrow and the horse killer cultivator. About the best tool we have adopted is the disc harrow, which is certainly excellent; but for a large orchard which needs constant cultivation all these are too slow and cost too much money to operate, in these days of high wages; and we should economise labor by purchasing better implements if they can be had.

What tools do you use in the orchard? some one asked of Mr. Woodward. He replied that after the four-furrow plow in early spring, the only tool he used was the *smoothing harrow*. This was so called because the teeth could be set at any angle; he set them pointing backward at such an angle that they would not gather rubbish. Each section of this harrow was six feet wide, and he used three sections, thus covering eighteen feet of ground at a time with a team of three horses. He could cultivate twenty acres of orchard in half a day with this harrow. It is not, therefore, very expensive to go through the orchard once every week or ten days in this way, up to August 1st, at which time a cover crop should be sown and cultivation discontinued.

COVER CROPS.

HERE is one of the puzzles of the Ontario fruit grower, to know just what is the best cover crop to use in the orchard. We have tried crimson clover, but as a rule only a small portion of the seed grows, and the result is a cover so thin that it is of little use as winter protection. In one or two instances it has been a grand success, particularly in the pear orchard of Mr. D. J. McKinnon, Grimsby, on a dark, moderately heavy soil, well underdrained. Every year it has grown up thicker, and no more useful or more beautiful crop could be desired.

Rye has been used by a great many, but unless ploughed in very early in spring it

robs the soil of much moisture, and is difficult to plough under.

Woodward said he had tried rape, turnips, oats, rye, and other things, but had found the hairy vetch the best of all. He had given it three years' trial, and found it very hardy and afforded an excellent cover for winter protection. Besides, being a leguminous crop, it gathered nitrogen for the enriching of the soil. The only hindrance to its general use was the cost of the seed, which was 9 cents a pound, but he saw no reason it could not be grown in Canada and sold for less money.

It was quite a consolation to some of us when Mr. Woodward mentioned chickweed as a good cover crop—one that makes a perfect mat of protecting material against the winter's cold, catches the leaves so they are not blown away by the wind, and affords a large quantity of humus when ploughed under in spring. Many of us had been looking upon this as a most troublesome weed that would grow up late in the fall when the fruit harvest prevented its destruction, and gave the orchard an appearance of being uncultivated. Henceforth then are we to encourage the growth of chickweed in the orchard?

OVERDOSE OF NITROGEN POSSIBLE.

POWELL (Representative N. J. Hort. Society, 1902) thinks there is a limit beyond which it may not be wise to sow clover in an orchard. He believes it possible to give too much nitrogen to the soil, and advises that, after three years of crimson clover in an orchard, a crop of rye or of some other non-leguminous crop should be sown. He thinks too much nitrogen tends to make lighter colored fruit and to lessen its keeping qualities. We should be glad to have further light upon this point, which so far as we know has not been so stated by any other authority.

What do you think of oats as a cover crop?

Oats, said Mr. Woodward, are excellent, but I would advise sowing rye with the oats, for they would remain alive through the winter. The hairy vetch was, in his opinion, the best cover crop, because it takes easily and forms a complete winter protection. He advised sowing five pounds per acre.

QUANTITY OF SEED PER ACRE.

FOR cover crops the following quantities of seed are recommended: Buckwheat, 1 bush.; crimson clover, 8 to 16 lbs.; corn, $2\frac{1}{2}$ to 3 bush.; cow pea, 2 bush.; oats, $2\frac{1}{2}$ to 3 bush.; peas, 2 to 3 bush.; rye, $1\frac{1}{2}$ to $2\frac{1}{2}$ bush.; vetch, 1 bush.

VARIETIES OF PEARS.

THE DUCHESS.

"I AM losing faith in the Duchess dwarf pear," said Mr. Woodward. His reason was that of late it grew knotty, uneven and inferior in quality. He had given it the same treatment as has been advised above for the plum, giving shallow cultivation, careful spraying and fertilizers, only less stable manure and more potash and phosphoric acid. Still it did not succeed as well as formerly, and this spring he had cut off the heads of a good many of his trees, hoping thereby to secure finer fruit. But even if first class, the markets do not call for it as formerly.

We have noticed this same difficulty at Maplehurst with the Duchess, and this spring we have cut at least two feet off the tops of our Duchess trees, hoping thereby to secure better growth of tree and consequently more perfect fruit. We notice too a poor demand for this fine pear in our home markets; indeed, for almost any pear. It would seem as if our markets are too limited to take the quantities produced, and that our only hope is in export. For this the Duch-

ess is one of our best, for it carries well, is large in size, and very good in quality.

THE BOSC.

Here is a pear that is worth attention, and Mr. Woodward finds that it succeeds well top worked on Duchess bodies, becoming quite productive. It is a pear that is wanted in the markets, will ship grandly, and give good satisfaction for export. It is a poor grower, and for that reason needs to be top worked on some better growing variety, such possibly as the Kieffer. On the quince it is a failure, and therefore it is useless to plant as a dwarf.

THE LAWRENCE AND OTHERS.

Here is a pear that is wanted in the home garden, for it is uniformly excellent in quality, ripens easily, and is unexcelled as a December table pear. It is too bad that it is not more in demand in the market, but it seems to be little appreciated, and therefore not profitable.

The Anjou is first-class, but will not hang on the trees long enough; and the Clairgeau is large and beautiful, but not good enough in quality to be very highly commended.

SMALL SIZED FRUIT FARMS BEST.

EVERY year we are more convinced that many of our Ontario fruit growers are trying to cultivate too much land for their capital. To buy the trees, plant, cultivate, spray and prune them for ten or fifteen years, until they begin to give a proportional income, means an expenditure of \$200 or \$300 per acre, and this added to the first cost of the land, means a greater investment than the average man dreams of. Instead, therefore, of attempting to plant one hundred acres in fruit, and starve for ten of fifteen years while it comes into bearing, it is wiser for the man with limited capital to begin with ten, fifteen, or twenty acres,

according to his ability, and give the best cultivation to this area. The usual farming methods in Ontario agriculture will not answer; he must treat his orchard as a large garden, and while adopting horse cultivation, and economical methods, he must give in the most intensive cultivation and the closest attention if he would really make a good percentage on his investment, in addition to his annual expenses. W. H. Covert, of Grand Forks, B. C., has a fruit ranch of 11,000 trees, of apples, pears, prunes, peaches, plums and cherries, but he does not manage it as a whole, but in sections; probably this is the only way he can make so large an orchard give paying returns. He says:

The tendency of the times is to cut the large tracts of land up into small plots. This system I have strongly advocated, and have myself subdivided my property into five and ten-acre lots. There has been a considerable influx of people desirous of engaging in diversified farming during the past year, and as the possibilities of the valley become better known on the outside, it will rapidly fill up. In my opinion no section of the province offers better opportunities for fruit growing than the Kettle River Valley, and a 10-acre plot is quite sufficient to maintain a family and give a good livelihood.

PLANT MIXED ORCHARDS.

SINCE it has become evident that certain varieties of apples are more in demand than others, as well as more productive, it has been the custom to advise planting large blocks of a single variety. In consequence we have very large orchards of Baldwin apples, for example; but when the trees reached bearing age, and then continued barren for many years, the owners became disgusted and set to work to dig out these magnificent trees because they were wholly unremunerative.

Gradually we are solving the problem and coming to an understanding of the difficulty. We find, from the results of careful experiments, that nearly all varieties of apples are unproductive unless their blossoms are fertilized by the pollen of other varieties, brought to them by the bees, which are far more re-

liable agents in carrying pollen than the prevailing winds. Waugh (Vermont Sta., Rept. 1900) covered with muslin sacks 2,500 Baldwin blossoms, from 10 to 30 being covered by each sack. These blossoms were therefore safely protected from the visits of insects and from all foreign pollen. The result was that only three apples set out of all these blossoms.

The practical conclusion is that *large blocks* of a single variety should never be planted, but always two or more varieties in alternating rows. In case of established orchards, the mistake can easily be remedied by top grafting another good variety here and there upon the trees.

FANCY FRUIT NEVER A GLUT.

SOME people always see gloomy prospects and glutted markets; they always look on the dark side of everything and seem never to catch even a glimpse to the silver edging of a cloud. We do, indeed, find our markets at times over supplied with certain fruits, but if we look into the condi-

tions we find either that the fruit was poor or that it was badly distributed. Perhaps one market was receiving three-fourths of the shipments from our Canadian growers, and hundreds of smaller markets throughout Ontario were almost bare of supply.

We do not believe that too much really high grade fruit, of good shipping quality, can be grown. There is an axiom about this which we believe will hold good, viz., that "the more good fruit put into a market the greater will be the consumption and the better the prices in the end," while no doubt the reverse of this statement is equally true. The fact is that when people cannot get good apples, for example, they will look out for choice fruits of other kinds, whether fresh or preserved, to take their place, and so on throughout the chapter.

The moral then is plain—grow only fancy high grade fruit, and place such goods only on the markets, and the chances are that we shall seldom see a glut, unless it be of over-ripe fruit that must be hurriedly disposed of.

WATERING SEEDS IN BOXES.

WHEN seeds are planted in boxes in the house there is great danger that in watering the earth the seeds will be washed out. This is particularly the case if the seeds are small and but lightly cov-



FIG. 2576. WATERING SEEDS IN BOXES.

ered, as is the case with pansy seeds, and many others. A good plan for watering such seed boxes is shown in the cut. A piece of cotton cloth is laid smoothly over the soil and the water poured upon that, when it spreads out all over the surface of the cloth and gently soaks into the soil. As much or as little water can in this way be added to the soil as may be desired, and the earth will not be disturbed in the least.—*American Agriculturist*.

THE BUD MOTH

(TMETOCERA OCELLANA.)

EARLY in spring, just as they commence to swell and open, the buds of the apple, pear, plum, cherry, quince and peach trees are sometimes attacked by a small, naked caterpillar about one-fifth of an inch long and dirty white in color. The head and thoracic shield are black or very dark brown. These caterpillars voraciously devour the opening buds and later feed on the tender leaves, binding several of them together at the end of a

shoot. In this nest the caterpillar lives and feeds, after a time attaining half an inch in size. Specimens sent us from Bad Axe, Mich., and placed in breed-

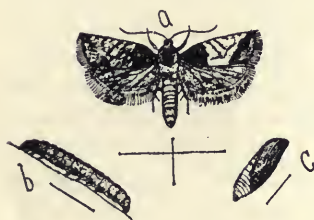


FIG. 2577. BUD MOTH.

ing cages, became full-grown about June 1. On June 15 they pupated inside the nest of leaves. On June 28 they commenced to emerge as ashy-grey winged moths, expanding about three-fifths of an inch from tip to tip of their wings. This delicate little moth (Fig. 2577) is very prettily marked near the centre of each fore wing with a large, ill-defined creamy spot, while the base and tip of the wing are marked with black and dull blue. The hind wings and the abdomen are grey. According to Professor Slingerland,* the moths lay their eggs three or four days after emerging, usually on the under side of the leaves. They are de-

scribed by him as transparent, flat, dish-like bodies, oval and very small. The egg stage is said to last from seven to ten days. The little caterpillars immediately commence to eat the outer coverings of the leaves, usually on the under side, leaving the skeleton of veins untouched. The young larvæ spin a delicate tube of silk, in which they live. When they are grown to about one-fifth of an inch in length they spin a tube in some protected place on the bark, and in this pass the winter. In the spring they come out and attack the bark as described.

RÉMÉDIES.

The bud-moth may be destroyed most easily at the time when it first attacks the buds in spring. Prof. Slingerland says:

"Undoubtedly it can be checked somewhat by spraying in July, when the larvæ are at work on the under side of the leaves, but the time to combat the pest most profitably and successfully is in the spring when a little poison can easily be sprayed upon the opening buds; and thus the little larvæ, hungry from its long winter's fast, will be quite certain to get the fatal dose at its first meal."

This spraying should be repeated several times, as the period during which the insects can be reached is a short one, and they do not all come out together. The opening buds should be kept thoroughly poisoned, and the trees should be sprayed once or twice after the blossoms fall.—*Mich. Exp. Station.*

THE NEED OF HIGH CULTURE.

WE cannot obtain good fruit that will have shipping and keeping qualities from trees that are trying to produce in an impoverished soil. Not only should thorough cultivation be given to soil in orchards, but the soil may need the application of some fertilizer. If there is a deficiency of mineral elements, fruit will have poor shipping and keeping quality. Light soils are usually deficient in potash and phosphates, while heavy or clay soils may have an abundance of these. For this reason apples grown on light soils should be sent to our home markets, while those grown upon clay soil can be shipped with

greater safety to foreign and distant markets.

Another very important factor in long keeping of fruit is a perfect and healthy foliage upon trees. It is the function of the foliage to elaborate the food that goes to the building up of vigorous growth of tree and branch, to the development of the fruit bud. If the leaves are eaten and mutilated by insects or diseased by fungous attack, there can be only an imperfect development of fruit that will be deficient in color and flavor, that will slack in the box or barrel and will not hold or keep long in the market.

New York.

GEO. T. POWELL.

APPLES IN STORAGE.

Mr. Walter Snyder, president National Apple Shippers Association of the United States, states that on the 1st of December, 1902, there were in cold and common storage in the United States 4,364,800 barrels of

apples, and in Canada 470,000, making a grand total of 4,838,800. Surely the result of the cold storage system will be an evening up of the supply during the whole year, so that the prices will be much more steady.

APPLE SCAB.

SIR.—I would like to obtain information from practical experience on the use of Carbonate of Soda for apple scab, also Hyposulphite of Soda.

1. Which of these would be the best and safest to use?

2. The quantities to use in solution with water?

3. Will this injure foliage?

This information will be very thankfully received through our Horticulturist.

Stoney Creek.

W. C. WEBSTER.

1st. Neither carbonate of soda nor hyposulphite of soda are at all reliable remedies for the apple scab. Of the two the hyposulphite of soda has the greater fungicidal value, and is a safer solution to use.

2nd. The carbonate of soda solution, which is sometimes used as an insecticide, but only upon dormant wood against borers and scale insects, is made by dissolving one-

half pound of washing soda in two gallons of water. It is very probable that by weakening the solution the caustic action upon the foliage will be reduced, but I have never seen it recommended as a fungicide. The hyposulphite of soda solution is made by dissolving one pound in ten to twenty gallons of water. This solution has been somewhat thoroughly tested with but unsatisfactory results.

3rd. The carbonate of soda (one-half pound to two gallons of water) has a strong caustic action upon leaves, and should be used, as I have before stated, only upon dormant wood. The hyposulphite of soda, of the strength given above, is not injurious to the foliage.

O. A. C., Guelph.

W. LOCHHEAD.



SCALE INSECTS IN GREENHOUSES

BY

PROF. W. LOCHHEAD,

OF THE BIOLOGICAL DEPT. O A. C., GUELPH.

MOST PERSONS who have ever attempted to grow the larger house plants, such as crotons, oleanders, lemons, date palms, ferns and acalyphs, which find their habitat in tropical regions, have no doubt felt frequently aggrieved on account of the presence of soft insects which do considerable harm. These soft insects are very diverse in character, some of them having a mealy appearance, while others are quite scale-like. The crotons and the Oleanders are especially troubled with the mealy-bugs, while the lemons and ferns harbor a species of a soft scale called lecanium.

There are usually two species of the mealy-bugs common in greenhouses, the *destructive* and the *long-threaded*. Unlike most scale insects, they can move about the plant somewhat freely. It is only when they become mature that they secrete the cottony sack which is so characteristic of them. Within this cottony sack are de-

posited the cream-colored eggs, which in a short time hatch out the young mealy-bugs. Fig. 2578 shows clearly the appearance of these two mealy-bugs. With regard to remedial treatment, probably the best method of dealing with these insects is to wash the plants with a soap solution, or to dip the entire plant in the solution, if such is practicable. In either case the plant should be drenched with clear cold water to wash off the solution. Another remedy which has been highly commended is an alcoholic extract of Persian insect powder. This is made as follows: Alcohol, $\frac{1}{2}$ pint; insect powder, 2 ounces. These are allowed to stand for about a week, then filtered and diluted with an equal quantity of water. The solution is then applied with an atomizer. It will be necessary in most cases to repeat the treatment.

Mealy-bugs require about six weeks to complete their life circle, that is, from the eggs of one generation to the eggs of the

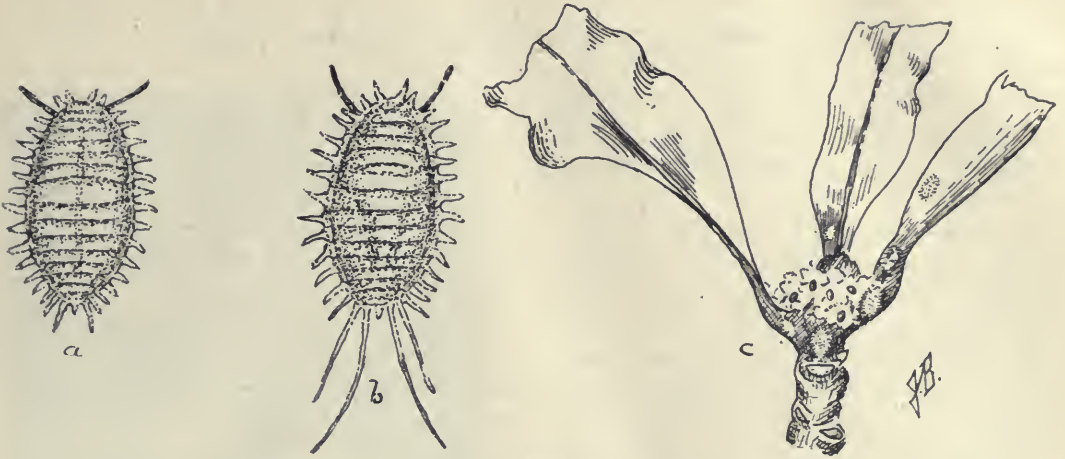


FIG. 2578. MEALY BUGS.

(a) Destructive Mealy-bug ; (b) Long-threaded Mealy-bug ; (c) Eggs in Cottony Sacks.

next. The soft scales, or lecaniums, are frequently quite troublesome to greenhouse and indoor plants. They may be readily recognized by their oval-shaped bodies. Most of them are oviparous, that is, egg-

layers. The eggs are produced in large numbers under the scale. Perhaps the most common lecanium of the greenhouse is the oleander scale (*lecanium oleæ*). Fig. 2579 shows the form of the scale and the way the

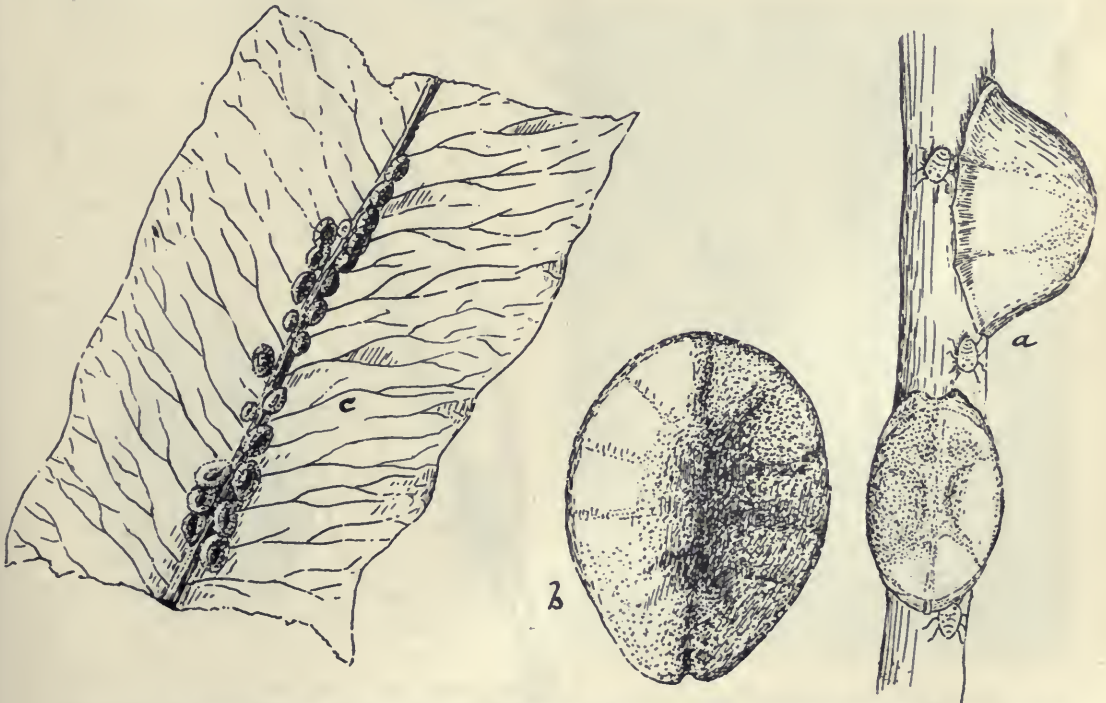


FIG. 2579. A SOFT SCALE on oleander. (a) Mature females with young escaping from beneath scale; (b) flat male scale; (c) arrangement of scales along mid-rib of leaf.

scales are arranged on oleander leaves.

Lecaniums are also frequently found on indoor ferns, on oranges, on lemon plants, and on acalyphs, which resemble the oleander scale to a large extent, but are referred to different species, such as the *hemispherical scale* and the *orange scale*.

The treatment for the soft scales is similar to that used against the mealy-bugs. Small plants are often dipped in soap or tobacco solutions. The most certain remedy is the hydrocyanic acid gas treatment, similar to the method adopted in the nurseries against the San Jose scale. A special compartment is necessary for this work, and special precautions must be taken with regard to quantities used and against possible poisoning. The writer will be pleased to give full directions to anyone who would like to try this method.

Among the armored scales which infest

greenhouse plants are the Florida red scale (*aspidiotus ficus*), and Bouche's scale (*aspidiotus hederæ*, or *nerii*). Fig. 2580 shows the form of the scales. The former scale is nearly circular in outline, about 1-25 inch in diameter, and dark brown in color. The latter is not so circular, and is white. It is found on a large number of green house plants, such as oleanders, cycas, yucca, acacia, etc.

With these scales the treatment with soap or tobacco solutions is to be commended. Repetition is necessary, and when the plants are dipped they should be rinsed afterwards with clear water.

There are many other scales which are usually found in every large greenhouse containing tropical plants, but enough has probably been said to draw the attention of the owners to the commoner scales and to the best methods of treatment.



FIG. 2580. (a) Bouche's scale; (b) Bouche's scale on a leaf; (c) Florida red scale; (d) Florida red scale on a leaf.

HYBRID REX BEGONIAS



FIG. 2581. BERTHA MCGREGOR.
(Hybrid Rex.)

THE new hybrid Rex Begonias of recent introduction are certainly quite an acquisition and improvement on the true and original type of Rex Begonias, more especially for window gardening. The new hybrid Rex have quite a dash of the shrubby begonia type in them, the habit of growth, form of foliage, as well as the more glabrous or glossy surface of their leaves, show most decidedly the characteristics of Begonia Diadema, a favorite shrubby begonia still with many plant growers.

The variety, Bertha McGregor (Fig. 2581), is a splendid variety for the window, and shows strong traces of Begonia Diadema parentage, its leaves being deeply cut and very similarly marked to Begonia Diadema. Begonia Mrs. A. G. Shepherd is another showy easy grown variety, the centre of its large glossy leaves being of a

bright silvery grey, beautifully margined with an emerald bronze-shaded green, with distinctive white spots dotted here and there. (Fig. 2582).

But the gem of all, in my opinion, is the variety known as Lady Annesley (Fig. 2583). Its delicately cut and sharply pointed leaves that glimmer and glisten like frosted silver, with a soft sheen of pink scarcely perceptible on the silvery ground color, together with the delicate tracings of reddish green leaf veins and leaf stem, are features that make this variety pleasingly conspicuous amongst the many beautiful varieties of the Rex Begonia. All of these begonias mentioned have the upright habit of the shrubby begonia, and are easier grown than most of the rough or



FIG. 2582. MRS. A. G. SHEPHERD.
(Hybrid Rex.)

hirsute leaved varieties of the true Rex Begonia. These varieties propagate from the leaves (or sections of the leaves), similar to the Rex Begonia, and are not as liable to suffer from leaf rot in winter time as the rougher leaved varieties are. The illustrations, as shown, give a very true idea of the form and color of these comparatively new varieties of this interesting class of begonias. —*Wm. Hunt, O. A. C., Guelph.*

THE PÆONIA belongs to the vast family or natural order of ranunculacæ, among which are found many plants of medicinal value. The pæonia is a hardy, perennial plant, a native of Europe, northern and temperate parts of Asia, northwestern America, China and Japan, so you can see it is an accommodating plant to nearly all tolerably cold climates. The situation should be remembered at the time of planting, for the cooler the situation the better will be the quality of the flowers, and the longer the season of flowering. It is only within the last twenty or thirty years that this now becoming popular flower has been considered

of much intrinsic value, excepting as an early, summer-flowering plant for the herbaceous border.



FIG. 2583. LADY ANNESLEY.
(Hybrid Rex).

OTTAWA CHILDREN'S EXHIBIT.

FOR a number of years the Ottawa Horticultural Society has considered that some effort should be made to interest the school children of the city in the cultivation of flowers, and instill them with a greater love for nature. Owning, however, to the small government grant which the society receives, nothing has been done up to the present, but this year the children will be given an opportunity to show how well they can grow flowers.

Mr. R. B. Whyte, late president of the society, offered at the directors' meeting Saturday night to give special prizes to school children for flowers grown from aster seeds,

which he would provide, if the directors would give space for the exhibits during the September show and provide judges. The directors readily agreed to the plan.

MR. WHYTE'S PLAN.

Mr. Whyte's scheme is to furnish ten children in each fourth form in the city with three packets of seed, each containing two hundred seeds, one white, the other two mixed of different varieties. The children are to show a certain number of blooms of each variety at the September show. Four prizes are offered for each variety, making twelve prizes in all. The first prize is \$2

and eighty gladiolus bulbs; second prize, \$1.50 and sixty gladiolus bulbs; third prize, \$ and fifty gladiolus bulbs; fourth prize, 50c. and thirty gladiolus bulbs. The prizes amount to \$15 in money and 660 gladiolus bulbs of Groff's best mixture. This generous offer of Mr. Whyte, it is considered, will create greater interest amongst the school

children in the cultivation and study of plants and have an educational effect.

Ald. Ellis also gave a number of special prizes for sweet peas, to be shown in August. These prizes are for the members of the society who have never won a prize in sweet peas at any previous show of the society.

CIVIC BETTERMENT AT ST. LOUIS

IN speaking of civic betterment it is impossible to ignore St. Louis for more than a few months at a time. The energy, persistence and fertility of resource displayed by the young civic league of that city is remarkable. While keeping free from politics, this organization has for its object "to unite the efforts of all citizens who want to make St. Louis a good place in which to live." Its success is shown by its growth. Organized about ten months ago with 100 members, it has to-day nearly 2,000 members. Its accomplishments have already been many.

The league first used its influence toward having a bill passed removing the exposition building from a public park in order that the new Carnegie library might be placed there. St. Louis has no free public baths. The improvement league built three, in conjunction with playgrounds, and gave 14,665 poor children baths during last summer. The baths proved so popular that the city itself will build five in a very short time. The league has succeeded in having the present bill-board ordinances lived up to, whenever new boards were erected, and to having many old bill-boards rebuilt. A grand boulevard and park system is being planned.

The president of the Civic Improvement League was made chairman of the commis-

sion by the mayor in appreciation of the good work of the league. This commission is about ready to report. The league was an active factor in the "keep our city clean" movement last summer, and distributed many thousand bulletins, giving all the city ordinances relating to that subject, for the information of citizens ignorant of their own personal responsibilities in such a movement. A special sanitary committee has followed up the movement, and encouraging results have been reached. Reports are made to the health department whenever garbage is not properly removed. The league sent a special representative to other cities to investigate the employment of women as sanitary inspectors. The report was so impressive that the city authorities are making arrangements to employ women sanitary and tenement house inspectors. The matter of keeping waste paper off the streets has been given attention. Sample waste-paper boxes have been put out with the league's name on them. The latest triumph of this hustling betterment organization is the appointment by the health commissioner, at its suggestion, of a woman sanitary inspector. Dr. Mary Tucker, the new official, will teach families in the crowded districts the need of clean homes and clean streets.—*Home and Flowers.*

BULBS AND BULBOUS PLANTS

THIS was the subject of a very valuable address by Mr. R. B. Whyte, of Ottawa, before the Hamilton Horticultural Society on Monday evening, March 6th. After the reading of the minutes, pads and pencils were distributed for the convenience of those wishing to take notes or to ask questions, and points of individual experience called for.

In Mr. Whyte we certainly have a model amateur gardener, for he has been growing flowers, and bulbous plants in particular, for twenty-five years past, and all purely out of his love for them. Truly in him and Mr. A. Alexander, of Hamilton, who from a child has loved and cultivated flowers and spends his morning and evening hours even yet in their cultivation, we have amateurs superior to many who claim to be professionals. Mr. Whyte has a large retail business in Ottawa requiring his close attention from 8.30 in the morning to 6 p. m., and yet he finds two hours a day, from 6 to 8 a. m., to give to his favorites in the garden.

WHEN TO PLANT.

After showing from samples, what really constituted a bulb, and how in it was stored up nourishment for most rapid growth in spring, Mr. Whyte divided the bulbous plants as follows:

(1) Those that must be planted in the fall, in order to have their roots established for their rapid development in early spring, such as snowdrop, crocus, scilla, chionodoxa, tulip, narcissus, hyacinth, fritillaria, etc.

(2) Those that may be planted in fall or spring, as lily, pæonia, iris, hemerocallis, funkia, for they do not shoot up so rapidly, and give time for root development in spring; only in that case being later in blooming.

(3) Those that can be planted in spring

only, as gladiolus, tigrida, montbretia, caladium, oxalis and canna, for there are too tender to be left in the ground through the winter.

Mr. Whyte favored early planting in the fall for Ottawa; sometimes between the middle of September and the middle of October he considered much better than later, in order to secure good root development before winter.

WHAT TO PLANT.

For very early bloom we must never omit the snowdrop, the crocus, the scilla and chionodoxa. In planting crocuses Mr. Whyte would plant mixed colors together in masses. A good broad band eight or ten inches wide along the border of the lawn would show up well. But of all the spring flowering bulbs he singled out the narcissus as the most elegant and beautiful. It was far superior to the tulip, which is almost the only bulb planted by the gardener in Gore Park at Hamilton, and he could not understand why it was so studiously omitted.

Of seventy-five varieties of narcissus grown by Mr. Whyte, the finest is the Emperor.

The following is a list of the more desirable kinds for Ontario:

1. Coffee Cup Narcissi:—Emperor, Golden Spur, Yellow Horsfieldi, Bicolor grandis, Princeps.

2. Tea Cup Narcissi:—Sir Watkin, Barri conspicuous, Cynosure.

3. Tea Saucer Narcissi—Poeticus, P. ornatus, Biflorus.

BEST TULIPS.

Being asked to give a list of the best varieties of tulips for the amateur's garden, Mr. Whyte gave the following:

Early Single Tulips:—(White) Joost van Vondell; (rose and White), College Maid;

(crimson and white), Joost van Vondell; (red and yellow), Keizer Kroon; (violet and white), Vin csomev: irhave, fe daddb or thedm red), Proserpina; (cardinal), Couleur de Cardinal; (blush), Marianne; (carmine and white), Le Matelas; (red and orange), Parma; (scarlet), Brilliant.

Late Single Tulips:—(Carmine and yellow), Macrospila; (yellow), Bouton d'Or; (scarlet and blue), Gesneriana; (yellow and red), Yellow Crown; (scarlet), Elegans; (rose and white), Rosalind.

Early Double:—G. Solis, Rex Rubrorum, Yellow Rose, Purple Crown.

Late Double:—Red Crown, Salamander.

BEST LILIES IN ORDER OF BLOOMING.

Umbellatum, Croceum, Citrinum, Tenuifolium, Excelsum, Browni, Candidum, Superbum, Longiflorum, Auratum, Tigrinum, Speciosum.

We might extend these lists indefinitely, but these are perhaps the ones of greatest general interest.

PLANNING AND PLANTING.

IN improving one's grounds the first thing to do is to prepare a definite plan. This should be drawn to a scale, and should show just where the paths are to be and the location of each group of flowering shrubs, trees, hardy perennials or bulbous plants. For a small yard house, where economy is necessary, one may do this for himself, but where an undertaking of any extent is proposed a landscape gardener should be consulted before setting to work.

SOME NECESSARY CONDITIONS

Mr. Wm. Hunt, of the O. A. C., Guelph, in addressing the Grimsby Horticultural Society recently, emphasized three important conditions necessary to a site desirable as a home, viz.: drainage, windbreaks, and a plentiful supply of pure water. Any one who has been unfortunate enough to place his house where it is surrounded with mud, and where the cellar fills with water in spring, will fully appreciate the importance of what he said.

THE LAWN.

The easiest method of securing a good lawn at the least expense in Mr. Hunt's opinion, was by seeding, using half a pound of seed to the square rod, and sowing in early spring. Preliminary to this the edges of the roadways and paths should first be

laid with well cut sod, the borders planted with hardy perennials, and the trees and shrubs set as desired. The importance of a first-class lawn can hardly be estimated, and a poor one is a constant eyesore; indeed, it might be compared to a beautiful picture painted upon an ugly background.

ORNAMENTATION.

Vines, climbers, rockeries and rustic work are all useful in completing a lawn picture, while summer houses and rockeries may be employed with excellent effect. In Great Britain so much importance is attached to such adjuncts that men sometimes make the building of rockeries a profession and find themselves kept well employed.

On a small lot a straight walk to the front door is often best, but where possible a curve will add beauty as one advances, and increases interest.

OVERPLANTING.

The nursery or orchard style of planting a front lawn should be carefully avoided, and instead the shrubs should for the most part be disposed along the sides in a mixed border. Here may be planted hardy perennials, with a few such shrubs as hydrangea paniculata, Forsythia, Spirea, or Deutzia, making the border five or six feet in width.

HYDRANGEAS

WE have in general cultivation two classes of hydrangea. One hardy, so much so that it will stand the most severe northern winter without protection, and will grow wherever the lilac will; and that is saying a great deal for it, for we have come to consider the lilac an iron-clad plant. This class is chiefly represented by the variety catalogued and sold as *H. paniculata grandiflora*. The other class has several representatives, the most prominent of which is *otaska*. This is a Japanese variety, of wonderful merit, popular with all who undertake its cultivation, because of its great floriferousness, and, probably, the favorite of all large-growing, shrubby plants for porch and veranda decoration during summer. Being too tender to withstand the rigor of our northern winters, it is necessary to house it from the cold by giving it a place in the cellar or a cold-storage building about the first of November. There are several varieties quite similar in general habit, but this one easily takes the lead.

The hardy hydrangea is a shrub having many merits. It grows well in any ordinary soil, but in order to do itself justice it should be given rich earth and encouraged to make vigorous development. When properly fed and well cared for generally it will grow to a height of six or seven feet, with a proportionate spread of branches from the ground up. As it branches freely, and each branch as a general thing bears a cluster of blossoms, the effect produced by a well-grown specimen is very ornamental, and especially so because of the enormous size of its flower clusters. These are sometimes more than a foot across, and often nearly that in length. When they first open the flowers are a creamy white. They afterward become ivory in tint, and change toward the last to a dull pink tinged with green. They last for many weeks—indeed, until the coming of winter. They appear in

early September, therefore it will be readily understood that in this shrub we have one that is at its best during the late fall when other shrubs are flowerless. This habit of late flowering is one of its chief merits.

It can be grown as a single specimen with good effect if properly trained, but it is most effective when grouped. Set from half a dozen to a dozen plants together, according to the size of the space you wish to fill, and you get from them a great mass of foliage against which their enormous clusters of bloom will be displayed most strikingly. In grouping this shrub set the plants about two feet apart each way. When they have begun to grow cut away the greater share of the old top and encourage them to push shoots from the base. To grow them as standards defeats the effect you aim at in grouping them, to a great extent, as you want them to branch low and form a mass of branches close to the ground. Every spring go over the bushes and cut them back well. Shorten every branch in order to induce a vigorous new growth, upon which you must depend for flowers. At the same time manure the soil well, working it in well about the roots of the plants. After plants become old it is a good plan to remove nearly all the old branches and let them renew themselves. This can be done from time to time and old bushes be made as vigorous as new ones. The roots never seem to lose their vitality, therefore they can be depended on to produce new and healthy tops whenever there is a demand for them.

For hedges of an ornamental character in the home grounds this plant deserves especial notice. By pruning we can make it compact and keep it of any size to suit us. To make a good hedge of it set two rows of plants eighteen inches apart, so setting them that the plants do not come opposite in the rows. Treat as advised for groups, but prune more closely, unless you desire a large hedge. If allowed to grow to suit them-

selves the plants will be more pleasing than they are likely to be when closely clipped, as they will have less formality.

This shrub should preferably be set in spring, though fall planting can be done if necessary, without any risk of losing the plants. Spring-set plants get a better and earlier start.

If a standard is desired for some prominent place on the lawn, select for the purpose a strong, well-rooted plant. Cut away all but one shoot, and do not allow this to branch until it has reached the height where you desire the head of your little tree to be. Then nip off the end of it. This will induce branching below. Allow only five or six branches near the top to grow. In this way you secure a foundation for the body of your plant.

Hydrangea otaska is grown from cuttings. The most satisfactory method of securing a plant is to purchase a young one from the florist. Pot it in rich loam, and give it plenty of water when growing. It will generally make its strongest growth during the early part of the season, though it grows more or less all summer. Small plants not more than six or eight inches in height often produce clusters of flowers larger than the pot they are growing in. But if you want a large plant with which to decorate your porch discourage early blooming and force the plant to throw all its energies into the production of branches. If allowed to bloom it will grow vigorously, but if a small plant is permitted to develop flowers you can not expect much else from it that season. Better postpone flowering until you have formed a strong plant with at least a dozen branches, each of which ought to give you a cluster of blossoms next season. Make the soil strong and rich, and keep it so as long as growth is going on. See that the plant never gets dry at the roots. As a general thing buds are formed soon after growth begins. These develop into flowers along about midsummer—sometimes

earlier—and they last until the time comes to put the plant in the cellar for winter, though in September they take on a reddish green look which is far less ornamental than the pink tints which characterize them while in their prime. To secure a fine specimen repot it whenever its roots fill the old pot, and keep on doing this until you have a plant of the size you desire. After that do not shift to a larger pot or tub, but depend on liquid fertilizers to keep it vigorous. Frequent cutting back has a tendency to thicken up a plant and make it compact. For example, we know a plant which is grown in a tub eighteen inches across, and goes into the cellar in November each year and remains there until March. Last season it had over two hundred flower clusters on it at one time. While in the cellar it is kept quite dry. Frequently it loses many of its old leaves, but no harm is done if this occurs. While in cold storage keep it as dormant as possible, thus imitating the process by which nature cares for deciduous plants out-of-doors during the winter. If kept in too warm a place, and especially one where there is considerable light, premature growth often sets in. This must be prevented if you want a strong plant. Keeping it dry at the roots discourages early growth, but a low temperature is also necessary, and the absence of light is quite desirable in order to secure complete dormancy.

Whatever pruning is done should be done early in spring before much growth is made. Cut away superfluous branches and all weak ones, and shorten those which have outgrown others, until you have brought the plant to symmetrical shape. If repotting is to be done, do it then. If your plant has reached the limit of root room which you feel disposed to give it, apply whatever fertilizer you prefer as soon as active growth begins, *but not before*. Some persons do their pruning after the young branches have got well started.—*Home and Flowers*.

SOME FLOWER LEGENDS

BY

EDWARD TYRRELL, TORONTO.

I HAVE intended for some time to send you occasionally some of the pieces of history I have picked up in my wanderings through books; but reading a piece in your February number on "The Care of Plants in the Window," in which the writer says "make friends with your plants, be on intimate terms with them," and this so harmonizing with my own ideas, I thought I would second his suggestion by giving some of the history of legends connected with plants which I have found, although to some they may be familiar.

The love of flowers is one of the universal sentiments. How pleasant it is to have some living object to tend or nurture, and which "though tongueless shall talk with you of days that are passed, of friends and kindred with whom it may be many happy hours were spent or sorrow shared," or historical events brought to remembrance. It is pleasant to imagine when looking upon our plants that they are a glad company of friends, each one with something interesting to tell, or have reveal to us, if we will only stop and listen—histories of men and events.

There is a little shrub, a species of bloom we see in the greenhouses and just now in bloom, which was one of the popular plants of the middle ages. Its modern Latin name is *Cytisus*, but its original name was *Planta Genista*. It has great beauties which cannot be overlooked; with its graceful habit and yellow flowers it attracts the attention of the most careless observer. The story in connection with this plant is: The Earl of Anjou, having committed a sin in connection with his church, was enjoined to make a pilgrimage to the Holy Land as penance. He went habited in lowly attire with a sprig

of bloom in his hat to denote his humility. The expiation finished, he adopted the name of Plantagenet from *Planta* and *Genista*, hence the name of the Plantagenet family.

X. R. Santine gives us that beautiful story of "Picciola, or the Prison Flower," a book that has been translated into almost every known language, and which probably most of your contributors have read; if not, they should do so. It tells how the Count de Charney, a rich and highly accomplished gentleman, maddened by solitude, although his station and fortune afforded him every opportunity of surrounding himself with all that could gratify his desires or tastes, but he denied his Maker, and with the increasing anxieties of a troubled mind, and wrapped in his own self-sufficiency, esteemed by no one, joined the company of those who wished to subvert the order of government,



FIG 2584.

spoke words which caused his arrest, and while expiating his folly within the walls of a prison, a little flower springs up between the chinks of the stones in the court yard and became to him a messenger of love and mercy and his acknowledgment of God.

This plant is known to us as the wall-flower, and it is familiar to all. It was introduced in England in 1573, and is a native of the south of Europe, Egypt and Morocco.

It does not appear to be a wild flower, and is, I believe, only found where men have lived or are living. It is the flower with which the romance writers embellish all their decaying battlements, falling towers, and monastic ruins. The English name refers to the habit of the plant as an inhabitant of walls and rocks. The Latin name, *Cheiranthus-Cheiri*, implies that it is in an especial manner a nosegay or handflower.

APHIDS OR PLANT LICE.

THEIR EGGS BEGIN TO HATCH WITH FIRST WARM WEATHER.

AMONG the very first insect eggs to hatch are those of the various species of aphids, or plant lice. These are among the most destructive and difficult to suppress of all insect pests, and where it is possible to prevent them from getting a start, measures to accomplish this should not be neglected. The eggs of aphidae are minute, oval, shining black bodies, that are to be found at the base of buds of various trees and shrubs, in many cases easily distinguishable by the naked eye. In some instances they are in dense clusters surrounding each bud, as in the case of the species infesting the "silver berry," a very ornamental shrub or small tree of the "false olive" family, while those found on the apple, plum, honeysuckle and other buds are more scattering. Some of these are even now hatching into

the "stem mothers," which bring forth their young alive and ready to begin their sap-sucking at once, and which are the progenitors of innumerable generations in the course of the season.

Wherever these are noticed—and it is worth while to make careful observations on all trees and shrubby plants that are subject to such attacks—the kerosene emulsion spray cannot be brought into requisition any too soon. Fruit and flower buds are still too undeveloped to be injured by the application, and it is much easier to bring it in contact with the newly-hatched insects at this season than after the foliage has come out, among which they hide, and often curl the leaves to that no spray can be brought in contact with them.

ART OF JAPANESE GARDENERS.—A Japanese gardener does not strive after bright colors. His object is to counterfeit a natural scene as nearly as possible. He cheats your eye into a loss of all sense of perspective. By judiciously selecting his trees and

keeping every object on a small scale he can make you imagine that his garden is very much longer than it is, and somehow he manages to deceive you as to its boundaries by artful arrangements of shrubs and stone work.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

EXECUTIVE BOARD.

THE Executive Board of the Canadian Civic Improvement League met in Engineer's club rooms, 96 King street west, Toronto, on the 16th inst., the rooms having been kindly granted the league for three months. The objects of the meeting, as defined in the secretary's letter, were to perfect the organization, and to arrange for the appointment of a field secretary, and to transact other important business.

VAST EXTENT OF THE WORK.

The vast extent of the work in hand was dwelt upon, covering as it does not only the improvement of our city streets and public parks, and the removal of the disfiguring bill boards; but also good roads and home sanitation. It should interest every one, —Galley 8.

Whether doctor, lawyer, merchant or farmer, for it aims at the betterment of the conditions of living for us all, and the beautification of our surroundings.

THE WOMEN SHOULD BE INTERESTED.

Major Ellis pointed out the fitness of women for the study of the aesthetic; they were naturally disposed to love the beautiful in nature and art, and had more time than men to devote to its advancement. In the American cities the ladies are taking a very prominent part in the work of civic improve-

ment, and clubs are being formed in many places. Why should not such clubs be formed in every town in Ontario, even if only containing five or six members each? They could be a wonderful power for the advancement of this work.

A FIELD SECRETARY.

Mr. G. R. Patullo, of Woodstock, ably advocated the appointment of a field secretary, who could stir up public interest. He should be a man who understood landscape gardening, and who could give addresses in every town on Improvement Work. Such a man could form clubs everywhere, and these clubs would co-operate with this league.

Finally the title of Honorary Field Secretary was accepted by Mr. G. R. Patullo himself, who was generous enough to say that in his intended summer tour to the great Northwest he would be pleased to give addresses on Civic Improvement in the principal cities and encourage the formation of local improvement clubs.

WAYS AND MEANS.

A Committee of Ways and Means was appointed, with a quorum resident in the city of Toronto, and the following is the list of members, viz.: Major Ellis, H. F. Duck, H. P. Hynes, J. D. Hayden (the president), and Major H. J. Snelgrove (the secretary).

These gentlemen have a hand in the ques-

tion of finances, and we hope they may receive much encouragement. Besides this committee, the whole province was divided into five districts, with a member of the executive board representing each, who would be expected to do pioneer work in the meantime until the appointment of a regular field secretary. The following are the divisions:

Western district, represented by G. R. Patullo, Woodstock.

Niagara district, represented by Mr. R. Tasker Steele, Hamilton.

Toronto district, represented by Major Ellis, Toronto.

Midland district, represented by J. D. Hayden, Cobourg.

Eastern district, represented by Major Smallfield, Renfrew.

THE ORGAN OF CIVIC IMPROVEMENT.

The Board had under consideration the best means of publishing the proceedings and its literature, and it was unanimously agreed that the *Canadian Horticulturist* be made the organ of the League for Canada. Already much space has been given to this kind of work in this journal, and now it is proposed to make it a special feature, because the improvement of our homes, the beautifying of our cities, towns and villages, and attention to sanitary conditions, these subjects interest everybody.

Further, it is proposed to issue bulletins that can be distributed very freely and published in the various newspapers, the first to be written by the secretary, the second by Mr. G. R. Patullo, and the third by Mr. L. Woolverton.

A YEAR OF PROGRESS IN PARK MAKING.

On every side we hear news of advance along the lines of park making. In Chicago the Lincoln Park commissioners are preparing to spend from two to four millions of dollars on extensions and improvements; and

the South Park commissioners are securing legislation to increase their powers and to improve their opportunities from Jackson Park almost to the mouth of the Chicago river. A boulevard to connect the north and south park systems, to cross the river by a commodious subway, is also under consideration. In Ontario we find Toronto and Hamilton both seeking to lay aside large areas of land in reserve for city parks, and soon we doubt not they will have plans prepared for an extensive and beautiful park system. Even the smaller towns, such as Brantford, Brampton and Walkerton, are securing land now to be made into parks as soon as public opinion warrants the expenditure.

ARBOR DAY.

Has not been kept in the schools in the manner that its importance deserves. Too often the only observance is a half-day tidying up the yard; and, even if it go so far as the planting of a few trees, the teachers do not sufficiently realize the higher end in view, that of directing the attention of the children upon outdoor beauty, and of teaching them how to use nature's material in improving the immediate surroundings of their homes and school houses.

RAILROAD PARKS.

Much of the work so far executed along the lines of our Grand Trunk and Canadian Pacific roads belong to the geometrical rather than to landscape gardening. While the lawns are pretty and well kept, the beds well planted and pretty, not the slightest effort has yet been made in any case that we have noticed toward unity of design or the making of the whole to harmonize into a picture. No attempt has been made to hide ugly views by appropriate grouping of trees, nor to add picturesqueness to the lawns by carefully disposed clumps of choice shrub-

bery; nor in any case have we noticed any effort made to make the place inviting to the waiting traveller by rustic or other seats in shady spots. On the other hand, the places are to be seen and not touched; they are guarded by ugly and forbidding palings, and woe betide the passenger who would dare to set foot inside! We commend the action of the Rio Grande Railroad in deciding to park nearly all of its stations in Colorado and Utah, and in placing this work in the hands of capable men to prepare suitable plans for the same.

PARK DEVELOPMENT.

It will take much time and much effort on the part of the members of our improvement clubs to educate public sentiment so far in favor of park development in Ontario, that the large sums required for the best work will be freely voted. Newark, N. J., has spent \$938,000 for improvements to Branch Park, and \$41,000 in improvements to East Side Park, besides similar amounts for many other parks in the same city. Toronto and Hamilton have as yet done very little in this direction.

THE HORTICULTURAL SOCIETIES.

I HAVE just completed a tour among the horticultural societies. My special mission was to point out to them the aim and purpose of the societies, the character of the work they are supposed to be engaged, and the results hoped for. I hope to contribute a series of articles to this department during the summer months, setting out in detail my conceptions of the work, and my experiences gained during the past few weeks. For the present I will only intimate that the purpose of the horticultural society is not to distribute seed potatoes nor any other work that properly belongs to the agricultural societies; but, on the contrary, to beautify the home, to purify home life, to promote a greater love of home by making it and its environments more attractive, and thereby lay the foundation of a patriotism worthy the land that we possess.

Nature has done much for us; we have a beauteous land, but as yet we are not doing much for ourselves with the natural advantages we possess. There is much work for the horticultural societies and the Civic Im-

provement League to do. Upon this, or these topics, I will dwell in detail later. I might suggest, however, as a good beginning, that the Civic Improvement League appoint a strong delegation to wait upon the great railway companies and request them to do something in the way of cleaning up their station grounds and freight yards. I may just here instance the pretty and progressive town of Orillia. The first impression the visitor gets of the town is exceedingly bad, all owing to the wretched disorder about the railway premises.

I must not forget that I promised several societies to give a list of hardy roses in this issue. Beginning with the dark shades, the following list will cover the range of colors: Baron de Bonstetten, Gen. Jacqueminot, Alfred Colomb, Lady Helen Stewart, Mad. Chas. Wood, Magna Charta, Francois Levet, Mrs. Sherman, Crawford, Common Moss, Crested Moss, Mad. Plantier, and the climbing Caroline Goodrich.

Mitchell.

T. H. RACE.

A SIMPLE METHOD OF DISPOSING OF HOUSE SEWAGE FOR FARM HOMES.

A LINE OF IMPROVEMENT WORK.

BY

THE SANITARY INSPECTOR,

DEPT. OF PUBLIC WORKS, TORONTO.

IN these days of popular education, when the people throughout the Province have the benefit of free lectures in dairying, fruit growing, domestic science, etc., it is noteworthy that a knowledge of so important a subject and one so closely allied to the physical and moral welfare of the people as sanitary science is confined to a limited number.

True, the principles of the science is an open book to the medical profession, and is freely discussed at medical conventions, but these discussions are mainly reported in professional journals and do not reach the great mass of the people at all.

In the matter of public sanitation the question of effectually disposing of sewage in small towns and villages is one of the most important problems that has engaged the attention of scientific men. The great cost of a system of sewage as used in large places has rendered this course impracticable while the use of privy vaults and cess-pools has been found objectionable and dangerous. That there is a desire on the part of those living in towns and villages, as well as in less populated districts for what are known as the "Modern Conveniences" of the city is evidenced by the thousands of cess-pools in existence or being built for the purpose of hiding away far beneath the surface of the earth the various organic and liquid wastes from the private residence, public house or institution as the case may be.

Those in authority labor under the dangerous yet common delusion that "so long as the stuff is put down deep enough there is no danger," and herein lies one of the great-

est causes of many of the diseases which at times are epidemic in whole communities, viz., the pollution of the water supply.

How is the water supply polluted by decaying organic matter buried deep under the surface of the earth?

In answer to this question a brief explanation of the existing physical conditions may be more convincing than bald assertions without the reasons being given therefor.

Over the whole surface of the earth, where vegetation is possible, nature has provided a most wonderful scavenger system, composed of millions of little workers to the cubic foot; these little workers are known as microbes, other species are also found in vast numbers in the water and air.

The natural functions of many of these microbes tend to produce one result, viz., purification, and when one comprehends that both the sun and air are essential to the life of the various species of microbes which are necessary to the proper decomposition of waste matter, it will be unnecessary to state that in the deep sub-soil where both are impossible, microbe life cannot exist, and hence it is stated that instead of being converted into life-producing matter at the surface of the earth, with its dangerous properties destroyed, organic matter is allowed to decay and putrify in the deep dead earth until it is washed into some near by well or stream, there to cause the innumerable ills produced by drinking impure water.

It may be said that wells are too far removed from cess-pools to be in any danger from this source, but the experience of the village of Lawson, near Basle, in Switzer-

land, will be sufficient to controvert any assertion to that effect.

In the village referred to, which has not within the memory of man been visited by epidemic typhoid, and in which not a single case had occurred for many years, there broke out in the year 1882 an epidemic which simultaneously attacked a large portion of the inhabitants.

About a mile from Lawson, and separated from it by the mountainous ridge of the Stockhalden, which was probably an old moraine of the glacial epoch, lies a small parallel valley, the Furtlethal. In an isolated house situated in the valley, a farmer who had just returned from a long journey, was attacked by typhoid, and within the next two months three other members of the family contracted the disease; the dejecta from the patients, together with all the house slops having been emptied into a small brook which flowed past the door.

Ten years previously it had been proven that direct connection existed between this brook and the springs on the mountain side, which supplied the village with water; and as the disease had not occurred in a single house supplied with well water, the authorities suspected that the water supply derived from the springs was infected with the disease germs, and on investigating found conditions existing as related above. In order that the connection between the brook and the springs might be proven beyond doubt, the following ingenious experiment was made: Eighteen hundredweight of salt was dissolved in water and then emptied into the brook, with the result that within a few hours the water coming from the springs was of a decidedly salty flavor. A similar experiment with two and one half tons of flour produced no result, showing that while the earth was capable of filtering the water so well that even such minute particles as wheat flour were prevented from passing through it was incapable, without the pres-

ence of air and microbes, to properly purify and oxidise it.

This remarkable case shows:

1st. That the power of mischief possessed by sewage placed beyond the action of bacteria, is enormous.

2nd. That the diffusibility of typhoid poison in water is practically infinite.

3rd. That water containing the germs of disease may not be purified by filtration through a mile of solid earth (a filter so fine as to arrest particles of wheat flour.

The moral to be drawn from the foregoing is that the greatest care should be exercised in the disposal of waste matters, and that under no circumstances should they be buried deeply under the surface of the earth.

The question will be asked, "How is decaying matter to be disposed of at the surface of the earth without creating a nuisance?" In answer to this question it may be said that as far as it applies to human excreta, two methods have been found to work successfully, viz.—the dry earth closet, the contents of which are dug into shallow trenches at regular intervals, and the septic tank system, the latter being preferable for the reasons that while it performs all the work of the dry earth closet it will also take care of all the liquid wastes from the house, and it requires little attention, while the former depends for its success upon unremitting care.

A brief explanation of the construction and operation of the septic tank system will be of value to those who are anxious to have their premises in the best possible sanitary condition, and who are willing to go to a comparatively small amount of trouble to produce the desired results.

Referring to the accompanying cut, it will be seen that a tank (fig. 1) constructed preferably of bricks or stone well bedded in cement to prevent leakage, is built at such a level as to allow the discharge pipe "D," which is of glazed tiles 4 inches in diameter,

to leave it at a depth of not more than twelve inches beneath the surface of the earth. Where the surrounding land is level this tank may be located quite close to the building where, if covered with earth (and sodded over if desired), it will not cause any inconvenience. If more convenient, it may be placed any distance from the house, and the inlet pipe "E" laid along a mound or ridge of earth, and covered with earth to protect it from the frost; this pipe must, under any circumstances, have a slight continuous fall from the building too, and must enter the tank at the top as shown. If, however, there is a considerable slope to the land, the tank may be buried beneath the surface, it being borne in mind that the branches from pipe "D," which may be taken off at any distance from the tank, must not be more than twelve inches beneath the surface and must be perfectly level. From pipe "D" about every two feet ordinary "T" fitting will give just the desired length, are run branches of field tiles (Fig. 2), 4 inches in diameter, the total contents of which should be equal to the amount of water which will be discharged at each operation of the valve, and allowing 13 tiles to every cubic foot to be discharged, the

number required will be readily found. The bend connecting the tank to the system of sub-surface tiles should be of iron, solidly cemented into the bottom of the tank to allow of the cauking in of the valve with lead.

The valve described in this article, which is manufactured by the Dominion Flushing Valve Co., of 558 Dufferin street, Toronto, is the only thing of its kind which can be set at any level, will open and close automatically, and, as it needs no adjusting it can be put in by almost any person. It overcomes the only objection ever made to the septic tank system, viz., that when the emptying of the tank depended upon a servant or some other member of the family to put a plug at regular intervals, replacing it when all the liquid had escaped, it was sometimes forgotten and the tank overflowing caused the pipe between it and the house to fill up, thereby causing a great deal of annoyance and expense.

It will be noticed that a dividing wall is built in the centre of the tank to a height of about two inches from the top, the latter space being left for the free passage of fresh air. In this partition is built overflow "F," the lower end of which should be "caged" with wire netting, $\frac{3}{4}$ inch mesh, to prevent

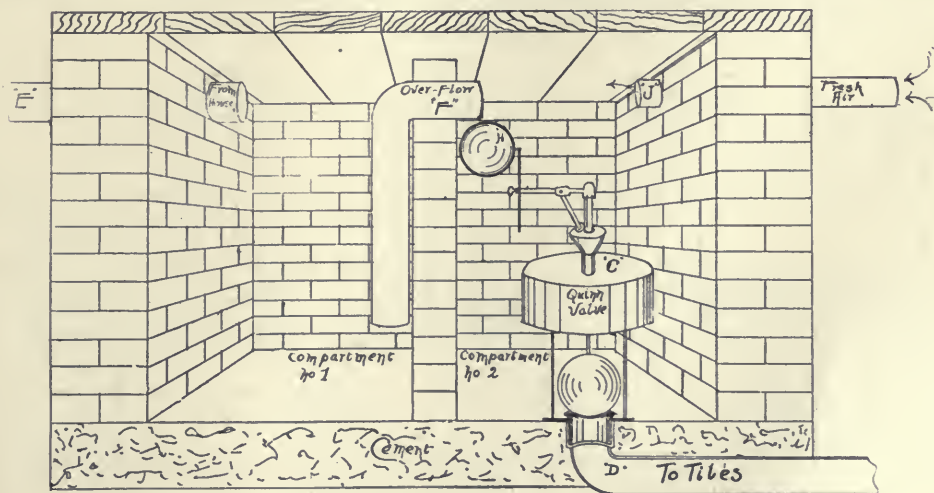


Fig. 1.

paper, etc., from passing through with the water. Pipe "J" permits the entry of fresh air, which passes over the sewage and up through the soil pipe "E" to the roof. Manholes "G" "G" provide access to both tanks.

The operation of the tank is as follows: All the sewage from the building enters the tank through pipe "E" filling compartment No. 1, the solids being compelled to float by the gasses generated underneath. When this compartment is filled the liquid overflows through "F" into compartment No. 2, the valve "C" of which is closed. When, however, the liquid rises to the level at which float "H" is set the valve opens, discharging the whole contents of compartment No. 2, be it fifty or five thousand gallons into the system of sub-surface tiles through which it soaks into the earth, there to be taken care of by nature as already explained.

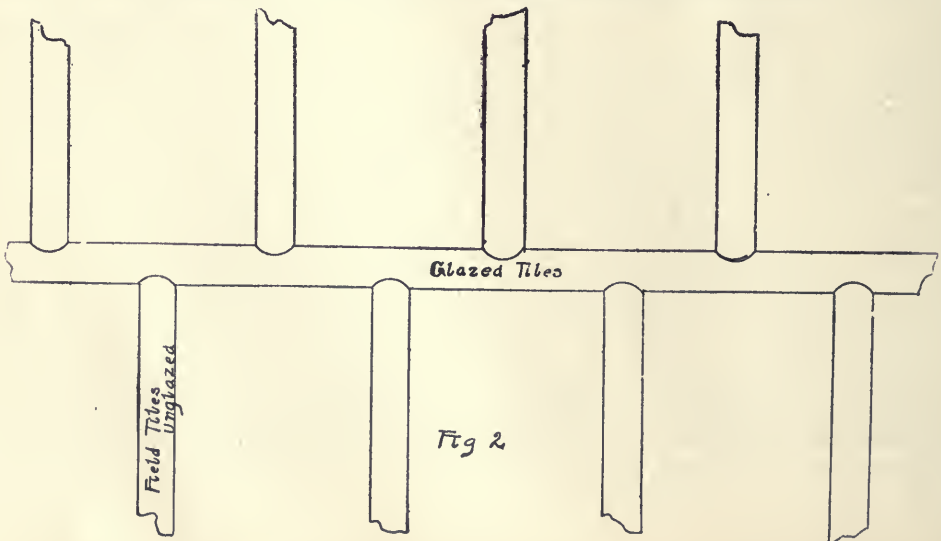
As the valve closes automatically when the tank is nearly empty, it will be seen that sufficient time will be given for that which has just been discharged to soak away before the tank fills again and the operation is repeated.

A word respecting the solid portion of the sewage retained in compartment No. 1. The value of the system will be appreciated when it is stated that so thorough is the action of

the millions of bacteria on this body, causing the almost immediate disintegration and decomposition of everything entering the tank, that tanks when opened after a year's use, and into which the sewage from buildings containing many inmates was emptied, were found to contain not more than two or three pails full of a kind of earthy substance, from which scarcely any odor was perceptible. It must be borne in mind, of course, that no disinfectants are necessary with this system, and nothing in the shape of chemicals should be allowed to enter the tank if the life of the bacteria, which is so essential to its success, is to be preserved.

Regarding the size of the tank necessary, it may be said that for an ordinary family a tank four feet long by three feet wide, and from thirty to thirty-six inches high would be sufficient, while for hotels or institutions one large enough to hold about twelve gallons for each inmate would be ample.

The septic tank system has the endorsement of all scientific men who have given the subject of sewage disposal close study. It will not give any trouble if built according to the directions given, and, contrary to the general supposition it will not freeze in winter; if the tiles are placed under a garden most valuable results may be obtained in flowers, fruit or vegetables.





The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

SPRAY CALENDAR—PART No. II.

BY

PROF. WM. LOCHHEAD,

O. A. C., GUELPH, ONT.

TREATMENT.

APPLE AND PEAR.

A.—Against Leaf-eating Insects and Fungous Diseases.

Treatment.	When to Spray.	Insect pests and diseases controlled.
1. Paris green in water. (Formula 6.) (Important.)	Just as leaf-buds are expanding.	Bud-moth, case-bearers.
2. Bordeaux mixture and Paris green. (Formula 2.) (Important.)	About a week later.	Bud-moth, case-bearers, canker-worms, tent-caterpillars. Scab, leaf-spot and mildew.
3. Bordeaux and Paris green. (Formula 2.) (Important.)	Just before blossoms open.	Canker-worms, tent-caterpillars, etc.
4. Bordeaux and Paris green. (Formula 2.) (Important.)	Just after blossoms fall.	Scab and leaf-spot, etc. Codling-moth, canker-worms, tent-caterpillars, pear slug.
5. Bordeaux and Paris green. (Formula 2.)	Ten days or two weeks later.	Scab and leaf-spot. Codling-moth, Palmer worm, apple Bucculatrix. Scab and leaf-spot, etc.

Codling-moths cannot always be controlled by spraying, especially in the southwestern section of Ontario, where a second brood appears later in the season.

In addition to spraying, in this district, use bandages around the trees. Make them from four to six inches wide, three or four inches thick, of any kind of cloth. Old bags, sacks, coarse material of any kind will do. Bands of straw and tow have been used with some success. During the first week in June bind one around each tree three or four feet from the ground; secure it either with cord or small nails; take it off every twelve days, and carefully examine for codling cocoons. These may be readily destroyed by crushing. Replace the bands as before.

Tent-caterpillars are controlled by burning the webs or nests in May; by collecting and destroying the clusters of eggs in fall and winter; by banding the trees, and by spraying the young caterpillars with Paris green.

Canker-worms may be largely controlled by banding the trees in autumn and early spring, and by spraying with Paris green when the worms appear.

B.—Against Sucking Insects, such as Plant-lice and Scale Insects, and against Pear Leaf Blister-mites.

Treatment.	When to Spray.	Insects controlled.
1. Kerosene emulsion. (Formula 10), (1 part in 10 parts water).	Before buds start in spring.	Pear-leaf blister-mite.
2. Kerosene emulsion solution (1 part emulsion to 10 parts water). Or whale-oil soap solution (Formula 12), (1 lb. to 7 gals. water).	As leaves are unfolding.	Pear psylla and aphids.
3. Kerosene emulsion (Formula 10), whale-oil soap as before.	Ten days later.	Psylla and aphids.
4. Kerosene emulsion (Formula 10), or whale-oil soap as before. Or lime wash (No. 16).	About end of May or first of June. During winter.	Oyster-shell bark-lice.

C.—Treatment for destroying borers:

(a) Dig out the borers whenever possible.

(b) Apply the soap-soda wash (Formula 15) in early June.

PLUM AND CHERRY.

A.—Against Curculio, Brown Rot, Shot-hole Fungus, and Leaf-eating Insects.

Treatment.	When to Spray.	Insects and diseases controlled.
1. Bordeaux and Paris green. (Formula 2.)	When leaf-buds are opening.	Brown rot, shot-hole fungus.
2. Bordeaux and Paris green. (Formula 2.)	When fruit is formed.	Curculio, green fruit worms, brown rot, etc.
3. Bordeaux and Paris green. (Formula 2.)	Two weeks later.	Brown rot, curculio, etc.
4. Ammonia-copper carbonate solution. (Formula 4.)	When fruit is large.	Brown rot, etc.

The Curculios are most readily controlled by jarring the trees in early morning, and collecting them on a sheet spread under the tree. The jarring should be begun when the fruit has set, and continued for three weeks. Thrice a week is often enough to jar.

B.—Against Plant-lice and Scale Insects.

Treatment.	When to Spray.	Insects controlled.
1. Kerosene emulsion (Formula 10), (1 part to 4 parts water.) Or whale-oil soap (2 lbs. to 1 gal. hot water). Or petroleum soap emulsion (Formula 14a).	In winter or early spring.	Plum scale, San Jose scale, etc.
2. Kerosene emulsion (Formula 10), (1 part to 10 parts water). Or whale-oil soap solution (Formula 12), (1 lb. to 7 gals. water). Or tobacco solution (Formula 11).	As soon as lice appear on young leaves.	Plant-lice.

PEACH.

A.—Against Peach-leaf Curl, Brown Rot, Curculio, Bud-moth.

Treatment.	When to Spray.	Insects and diseases controlled.
1. Bordeaux and Paris green. (Formula 2.)	Before flower buds open.	Bud-moth and peach leaf curl, brown rot.
2. Bordeaux and Paris green. (Formula 2.)	After blossoms fall.	Peach-leaf curl, brown rot, bud-moth and curculio.
3. Bordeaux and Paris green. (Formula 2.)	Two weeks later.	Brown rot, etc.
4. Ammonia-copper carbonate (Formula 4.)	When fruit is well formed.	Brown rot, etc.

B.—Against Aphids, and Scale Insects.

1. Kerosene emulsion (Formula 10), (1 part in 10 parts). Or whale-oil soap (Formula 12), (1 lb. in 7 gals. water).	Whenever young lice appear.	Aphis.
2. Whale-oil soap (2 lbs. in 1 gal. hot water). Or crude petroleum, 25 per mechanical emulsion. (Slightly dangerous.)	In early spring before buds open.	San Jose scale.

C.—Against Peach Tree Borer.

1. Prof. Slingerland recommends gas tar as a trunk wash. A trial experiment should be made first on a few trees to find out if it injures the trees, for gas tar varies in comparison.
2. Dig out or probe the borers every fall and spring; and mound up a new base with earth for six inches; remove and examine in September.
3. Apply Formula in early June.

GRAPE.

A.—Against Black Rot, Mildews and Leaf-eating Insects.

Treatment.	When to spray.	Insects and fungi controlled.
1. Bordeaux and Paris green. (Formula 2.)	As buds begin to swell.	Flea-beetle, black rot, mildews.
2. Bordeaux and Paris green. (Formula 2.)	Ten days or two weeks later, before blossoms open.	Black rot, mildews and flea-beetles.
3. Bordeaux and Paris green. (Formula 2.)	Just after blossoming.	Black rot and mildews.
4. Bordeaux and Paris green. (Formula 2.)	Two weeks later.	Flea-beetle and black rot.
5. Ammonia-copper carbonate (Formula 4.)	When fruit is well formed.	Black rot and mildews.

B.—Against Grape Thrip.

- | | |
|---|---|
| 1. Kerosene emulsion, 1 part
in 9 parts water. | Soon after leaves are formed. Thrip of leaf-hopper. |
|---|---|

CUCUMBER AND SQUASH.

For the Squash Bug.—Kill the early bugs, and the yellowish eggs on the underside of the leaves; kill the bugs every morning which collect under chips and boards placed near the vines.

For the Striped Cucumber Beetle.—Keep vines well covered with Bordeaux mixture; cleanliness in garden in fall; protect young vines with muslin, or cheesecloth netting; insect powder and flour as for cabbage worm; tobacco water and soft soap mixture sprinkled on vines, followed by a dusting of lime.

ASPARAGUS.

For Beetles.—Spray plants after cutting season with Paris green; regular cutting of all shoots.

For Rust.—Cut and burn all plants in fall.

CABBAGE.

For Cabbage Worms and Lice.—Pyrethrum applied in solution (1 ounce to 3 gallons of water) or dusted on (1 part pyrethrum to 5 parts flour).

For Cabbage Root Maggots.—No thoroughly reliable remedy is known, but good results have been obtained by using Goff's tarred paper cards. These are pieces of tarred building paper, 3 inches in diameter. In the centre is a hole through which the root of the young cabbage is placed on transplanting. Card lies flat on ground.

STRAWBERRY.

The Rust or Leaf Blight.—Bordeaux mixture, when it can be applied without disfiguring the fruit, will control this disease. Apply at intervals of two or three weeks on new beds after they begin to make runners.

TOMATO.

Rot and Blight.—Spray with Bordeaux mixture as soon as rot or blight appears, three times if necessary, at intervals of 10 to 15 days.

POTATO.

Scab, Blight, and Beetles.—For the Scab: Soak the "seed" potatoes or tubers for two hours in a solution of formalin (8 oz. in. in 15 gals. of water).

For Blight and Beetles: First spraying: Paris green as soon as the beetles appear (one pound to 100 gallons of water).

Second spraying: Bordeaux mixture and Paris green when plants are six inches high.

Third and fourth sprayings: Bordeaux mixture at intervals of 10 to 15 days, if necessary.

Spraying with Bordeaux mixture will prevent the blighting of the plants and the rotting of the tubers.

RASPBERRY.

Anthraxnose, Leaf-Blight and Saw-fly Larvae.—First spraying: Bordeaux mixture and Paris green just before growth begins.

Second spraying: Bordeaux mixture and Paris green about when first blossoms open.

Third spraying: Bordeaux mixture when the fruit is gathered.

CURRANT AND GOOSEBERRY.

For Worms and Mildew.—First spraying: Potassium sulphide or Bordeaux mixture and Paris green before the buds expand.

Second spraying: The same 10 to 15 days later.

For worms alone, hellebore or Paris green will be effective.

For Currant Plant Lice.—Spray with kerosene emulsion or whale-oil soap solutions as

soon as lice appear ; or dust carefully with ne wood ashes.

CELERY.

Leaf Blight.—First spraying : Bordeaux mixture (Formula 1) while in the seed bed.

Second spraying : Bordeaux mixture a week after transplanting.

PEAS.

Pea-weevil or Pea "bug."—Fumigate the peas as soon as threshed in tight bins, boxes or oil barrels, by placing carbon bisulphide in shallow pans on top of the peas, and covering the whole tightly for 36 hours. Use 1 lb. for 100 bushels ; 1 oz. for 100 lbs. of peas ; and a tablespoonful to every cubic foot. The same treatment may be used to kill weevils in grain and in meal. As this gas is explosive great care should be taken not to bring a light near it until it has been ventilated.

MISCELLANEOUS.

Cow Horn Fly.—Apply with a brush on the parts most usually attacked a mixture of one quart of seal or fish-oil and one tablespoonful of carbolic acid.

Mustard.—Spray just before the plants some into bloom, on a calm day. Use formula 3, and an ordinary barrel spray pump. A barrel of solution is enough for an acre.

Buffalo Carpet Beetle and Black Carpet Beetle.—Take up infested carpets and spray with benzine ; fill cracks in floor with putty or plaster paris ; lay pieces of red flannel in closets as traps, which should be examined every week.

Red Ants.—Attract to a sponge filled with sugared water, and kill the collected ants by dropping them into boiling water. Repeat.

Rose Slugs.—Apply hellebore before buds open, and at intervals of a week or ten days.

Thrip, or Leaf-Hopper, on Rose or Virginia Creeper.—Use tobacco solution ; whole-oil soap solution (1 teaspoonful in 2 quarts of water).

Red Spider.—Syringe or spray with cold water, or tobacco water.

TABLE OF FERTILIZERS FOR THE GARDENER.

Given Before the Hamilton Horticultural Society by Mr. F. T. Shutt, Chemist Experimental Farm, Ottawa.

ROSES AND FLOWERING PLANTS.

(Out of Doors).

Ground bone... . 4 parts.

Sulphate of potash 1 part.

Well worked into the soil at the rate of, say, 4 lbs. per square rod. If leaves are yellow, apply nitrate of soda, one-third to two-thirds lbs. per square rod, as top dressing.

POTTING SOIL AND FOR USE IN FRAMES, GREENHOUSES, ETC.

For potting soil (house plants, etc.), $\frac{3}{4}$ lbs. to $1\frac{1}{2}$ lbs. of above mixture of ground bone and sulphate of potash, thoroughly incorporated

with every 100 lbs. of soil. (N. B.—It is better to commence with the smaller application and subsequently enrich, if necessary). If growth lacks vigor, nitrogen can be applied as nitrate of soda to the pots. This is most easily done by making a solution of 1 oz. nitrate of soda to 1 gallon water. Two ounces, once every fortnight or three weeks, per 6-inch pot, will be sufficient.

For soil in greenhouses, 2 lbs. of above mixture of ground bone and sulphate of potash for 100 square feet. If growth is not vigorous, follow with nitrate of soda 1 lb., sulphate of potash 1 lb., per 100 square feet.

Instead of the foregoing formula, the following may be used for hothouse work, for frames and vegetable growing:

Nitrate of soda	$\frac{1}{2}$ lb.	} Per 100 square feet of surface.
Superphosphate of lime . .	1 lb.	
Ground bone	1 lb.	
Muriate of potash	$\frac{1}{2}$ lb.	

N. B.—To facilitate the distribution, mix with 4 to 5 times its volume of dry earth.

After growth has commenced, nitrate of soda at the rate of 4 oz. per 100 square feet may be applied—and repeated, if necessary, every second or third week during growth.

Note.—If rich garden loam, reinforced with well rotted manure, is used, there is no occasion usually to apply fertilizers.

LIQUID FERTILIZERS FOR HOUSE PLANTS, VEGETABLES, ETC.

Nitrate of soda 3 parts.

Sulphate of potash 1 part.

Phosphate of soda 1 part.

Dissolve in water at the rate of 1 oz. to 1 gallon, and apply once every fortnight or three weeks at the rate of 1 to 2 fluid ounces per pot.

If soil is very rich in organic matter (i. e., rotted manure), and plants run to foliage, omit the nitrate of soda from above formula.

STRAWBERRY AND SMALL FRUITS, ALSO USEFUL FOR GENERAL GARDEN CROPS.

A—Ground bone	1 part	} 500 lbs. to 800 lbs. per acre.
Superphosphate	1 part	
Muriate of potash	1 part	

For Strawberries—Top dress with 100 lbs. of nitrate of soda per acre after blossoming.

In place of "A," the following may be substituted, and is frequently better by reason of its larger percentage of soluble acid.

B—Ground bone $1\frac{1}{2}$ parts.

Superphosphate of lime $1\frac{1}{2}$ parts.

Muriate of potash 1 part.

Apply at the rate of 500 lbs. to 800 lbs. per acre, and follow with nitrate of soda, as already indicated.

LAWNS.

Preparation of the soil is most important. Before seeding, work into the soil :

Ground bone 5 parts.

Muriate of potash 1 part.

At the rate of 5 lbs. per square rod.

Top dress with muriate of potash at the rate of $\frac{1}{2}$ lb. per square rod 2 or 3 times during the season.

ORCHARD MEETINGS CONDUCTED BY DOMINION FRUIT INSPECTORS.

THE FRUIT DIVISION of the Dominion Department of Agriculture is co-operating with the Provincial Departments of Agriculture in the holding of practical orchard meetings to demonstrate such subjects as pruning, grafting and spraying. In Ontario, these meetings have been held under the auspices of the Farmers' Institutes. Messrs. McNeill, Lick and Carey, Dominion Fruit Inspectors, each accompanied a delegation of speakers at a series of meetings lasting about three weeks. These were held in the orchards and, as stated, consisted chiefly of practical demonstration in orchard management. The farmers, who attended in goodly numbers, also took part freely in the discussions which ensued; these were usually continued at evening meetings held in a local hall. In many cases local fruit growers' associations were formed with the object of meeting regularly during the season and carrying on similar work amongst themselves.

A series of orchard meetings has just been arranged for certain counties in Quebec. The Quebec Department of Agriculture will co-operate with this department, and furnish a speaker on the delegation. The representatives of the Dominion Fruit Division are Inspectors Scriver and Dery, of Hemmingford and Montreal respectively. These meetings begin on the 20th of April and will last nearly the end of May. A similar series has been organized in conjunction with the New Brunswick Department of Agriculture, extending through the same period. At these meetings, Inspector McNeill of Walkerville, Ont., and Inspector Vroon of Middleton, N. S., will be the speakers representing the Dominion Department of Agriculture,

A NEW AND VALUABLE RASPBERRY.

R. B. Whyte, a director of the Ontario Fruit Growers' Association, some time since developed a raspberry which has been spoken of most highly by those who have tested its quality. The origin of the raspberry was peculiar. Some years ago Mr. Whyte kept chickens, and amongst other refuse given them was some raspberries. Finding that his chickens inter-

fered with garden work, he killed them off and pulled down the hen house. Where the hen house had stood there grew thirty raspberry vines, started from the seeds in the berries which had been thrown to the chickens. These were such hardy, vigorous plants that the owner transplanted them and kept them well cultivated. Of the thirty vines one of them, the Herbert, by name, proved of special value, and this was kept, whilst the rest were destroyed. This was the origin of the new raspberry which Mr. Whyte has recently sold to a nursery for \$450.

THE WORLD'S FAIR AT ST. LOUIS.

According to press notices of the World's Fair, St. Louis, sent out by Mr. F. W. Taylor, there will be twice the space devoted to fruit at St. Louis that has been given it at any previous World's Fair. All states, societies and individuals are urged to begin at once to make preparations for an exhibit that shall surpass anything ever yet attempted. We trust that Canada will be creditably represented.

THE AMERICAN PARK and Out Door Art Association will this year hold its annual convention in Buffalo, N. Y., on July 7-9. One day will be spent in the beautiful park reservations about Niagara Falls. Special Sessions will be devoted to School Gardens and Park Interests.

THE INDUSTRIAL FAIR will this year be made a Dominion exhibition, and will no doubt be the best fair ever held in Canada. With the new main building completed, and the other buildings renovated; and with the prospect of a liberal grant from the Dominion and of special grants from the Province of Ontario, there is no reason why it should not surpass the most sanguine expectations. The Experimental Station exhibit of fruits will attract more attention than ever because of the great number of new varieties of fruits now in bearing, concerning which planters will want information before purchasing.

Open Letters

AUSTRALIAN APPLES.

An important factor in the future of our long keeping varieties of apples, like the Baldwin and Ben Davis, is the shipments of Tasmania and Australian apples. These shipments have been increasing from year to year, and the New York Fruit Trade Journal has received definite advices of shipments amounting during the season of 1902 to 307,400 (Dennis & Sons makes the shipment 415,000) cases to London and Liverpool. The first of these shipments

will reach London about March 30th, and there will be regular arrivals until June 15th, when the season closes.

Ottawa.

A. McNEILL.

EXPRESS COMPANY FAVORS BRITISH COLUMBIA.

Sir,—I enclose you clipping from our local paper, for your own information or use, if you please.

By the February number of Horticulturist,

page 52, Mr. Smith practically states that plums cannot now be shipped to Northwest owing to lack of favorable rates and conditions. Yet, as you will see by the clipping enclosed, the express company can, and have done so in the past, make both favorable rates and conditions for B. C. shippers, from the coast to Winnipeg; a greater distance than from Ontario fruit points to the prairie capital, and even on such perishable fruits as strawberries. Plums in large quantities are shipped (California style packages), and arrive in splendid condition.

Last season a friend sent me by express a case (Wilson) of pears from Beamsville, just as a test of keeping qualities of Bartlett. About three-fourths proved to be in perfect condition. The balance were quite soft. The square apartments in the drawers were not suitable for the larger pears. Wrapped in paper, in boxes, pears should carry safely to any Northwest point. Yours truly,

A. W. FINBOW.

(From Daily News-Advertiser, Vancouver, B.C.)

If plans now pending between the fruit growers of British Columbia and the officials of the Dominion Express Company are completed, three times as much fruit will be shipped this year from Vancouver to Winnipeg as was ever the case in any previous year.

Inspector Kirby, of the Dominion Express Company, this morning announced that his company is prepared to run a daily car all summer especially for the fruit export of the province. This will be attached to the through express, and will make a three-day trip to Winnipeg.

Last year cars of the pattern that will be used this season every day were operated many times during the season. No regular schedule was arranged, but the car was run only whenever sufficient business offered to make it worth while. The car has special ventilators, and has every convenience for the transportation of fruit in the best and most practicable manner.

"This car will be run every day after June 1," said Mr. Kirby. "The strawberry crop will be the first handled, and then the other fruits as they ripen. We will give the best possible service to Winnipeg, and at rates that should meet all the requirements of the growers. A meeting of the local association will be held in Victoria on March 4, and by that time we will be able to announce a tariff."

PLUMS ON THE WILD PLUM STOCK.

Some time ago the question was asked, How will plums grow on the wild or Chickasaw stock?

We have about four hundred grafted or budded on the wild stock. They are quite vigorous, and regular annual bearers of heavy crops. In fact, most of our best show plums are gathered from these trees. They should, however, be grafted or budded very low down, otherwise the more vigorous growing varieties for a time would outgrow the stock. But when they get into bearing the top will not grow so fast and

the stock seems to catch up. Where only a few trees are wanted a good way is to take sucker roots about half to three-quarters inch in diameter, plant in nursery row for one year, then cut off low to the ground and graft with the required varieties. They will make trees wonderfully fast, and are as easily grown as potatoes.

J. G. MITCHELL,

Georgian Bay Experimental Station.
Clarksburg, Ont.

MR. T. H. RACE AT KINCARDINE.

Sir: We had a treat last week, consisting of two addresses on the following subjects (by Mr. T. H. Race, of Mitchell, one of the best amateur rose culturists of Ontario), viz., Bulb and Rose Culture, and Their Influence Upon the Home.

The subject of bulb culture was treated on to the students of the various schools in our town in the Town Hall, beginning at 4.15 p.m., and was listened to with a great deal of interest, and no doubt there was implanted on the minds of many the seeds of knowledge that will lead to the beautifying and adornment of homes in the future.

In the evening Mr. Race lectured to an appreciative audience in a fairly filled hall. It being St. Patrick's day in the evening, the Methodists had a social for the benefit of their church, and so many were prevented from hearing the refining lecture, but when we know that about 150 students in the afternoon and about 300 grown up people in the evening listened with marked attention to such an experienced amateur, the refining influence will be widespread.

Mr. Race contends that the culture of flowers and plants gives an interest to the young and makes home attractive, and also that "love of country" is only seen in and by a home-loving people.

The Culture and Care of Roses was very interesting, and many took notes.

The speaker said that rose bushes for outside planting should be about two years old and be planted in rows 5 feet apart and 3 feet apart in the rows, and when sufficiently grown to bend one cane of each bush and tip it near the root of the next and train this so that the shoots rising therefrom will form the flowering stems.

To destroy the thrip he has found nothing equal to hen manure put beneath the plants, the ammonia from same proving certain death to this pest of the rose bush, and that soap suds sprinkled over and under the leaves also kill the thrip.

We spoke very highly of the usefulness of the toad in the garden, particularly in destroying ants, which are so troublesome in many gardens. He places a toad under a box set close to an ant hill, and so quickly does master toad catch them that very soon not an ant can be found. The prejudice against toads should be taught to be wrong and every means taken to preserve them.

All who listened seemed pleased, and a crowded hall is sure to greet Mr. Race should he ever speak again in Kincardine.

WM. WELSH,
President K. H. S.

Kincardine, March 24, 1903.

FRUIT PROSPECTS AT WHITBY.

Sir: As we have nearly finished pruning our orchard, we have a good opportunity of examining the buds, wood growth, etc., of the different varieties we are experimenting with. We find no frozen or injured buds on any of our apple trees; but some of the pears that were very heavily laden last year are not as perfect as usual, notably Dr. Reeder, Fred. Baudry, President Drouard, Doyenne d'Ete, and some others, while Clapp's Favorite, Bartlett, Dempsey, Lawrence and W. Nelis are pretty well filled with perfect buds. Kieffer Angouleme, Louise Bonne, Ester Buerre, Clairgeau, Tyson, Jules Guyott, Lucrative, and some of the newer sorts, as Rutter, Koonce, Wilder, Lawson, etc., were never in better showing at this season. Should the spring be favorable I have hopes of a heavy crop of pears. The month of March, so far, has been so fine and springlike, that the buds are swelling already, which is at least two weeks earlier than last year. Although the frost is all out of the ground, the land is too soft to drive over. We have two sprayers all ready to operate as soon as the land is solid enough. Owing to so much rain at spraying time last year, our spraying was not done in time, and we suffered the consequence in having too many scabby apples. The prices of apples has ruled very low from the start last fall, and is still low for anything but No. 1 stock, and this is only about half the price they were at this date last year. I hope the committee appointed at our last annual meeting on transportation will accomplish some good work before we have another fruit crop to handle, as the present and past rates charged are simply prohibitive between here and the eastern markets. It is absurd that the railway companies should charge more for 100 lbs. of pears than for the same weight of apples. When the freight and commission is taken from the selling price there is often a loss, when the packages are counted in; and I hope that the carrying rates will be so adjusted that we will not be asked to pay more from here to Montreal than the fruit men of California do for the same kind of goods and packages and fruit. There is another grievance that ought to be remedied, that is the supplying of cars on the G. T. R., which was very badly done last year; several car loads of apples, which were packed and delivered on their platform, lay there for weeks and were frozen, so that they were simply dumped on the commons and left to rot, although the railway company were requested for cars weeks ahead. These losses should be remedied, and the railway company should be made to feel that others have rights as well as themselves.

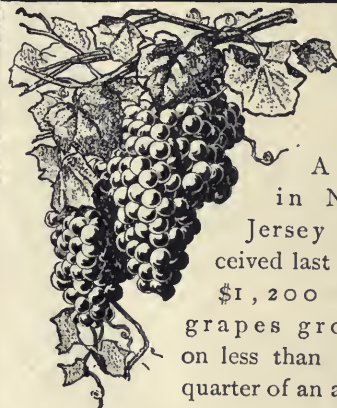
Subscribers here speak appreciatingly of the improvement of the Horticulturist, and hope its success will continue. Yours respectfully,

Whitby.

R. L. HUGGARD.

CLEMATIS FAILING.

SIR,—I have planted Jockmanii, Henryii, and other varieties of Clematis for three years in succession to shade a verandah having an easterly frontage, close to Lake Ontario. They are carefully planted, and do well until they commence to bloom, then something happens to them, the blooms droop; and the plant gradually dies. Out of the five Clematis planted last spring, only one survived the summer. I have found "cut worms" about the roots of some that have been destroyed, but could find none in this instance. Clematis on verandahs having a north and southerly exposure have always done well.



A man
in New
Jersey re-
ceived last year
\$1,200 for
grapes grown
on less than one-
quarter of an acre.

The value of
NITRATE OF SODA

in increasing the quantity and quality
of grapes is explained in a paper by
Prof. PAUL H. WAGNER,
copies of which will be sent free.
WILLIAM S. MYERS, Director,
12 John Street, New York.

**New Catalogue for 1903 just out.
Send for it.**

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FIG 2585. THE BRIGHTON GRAPE.

THE CANADIAN HORTICULTURIST

JUNE, 1903

VOLUME XXVI



NUMBER 6

THE BRIGHTON GRAPE

FOR the dessert table nothing is a more attractive ornament than a fruit dish piled with a choice assortment of delicious grapes, fresh and plump from one's own garden and appetising by reason of their beauty. A garden of well chosen varieties would furnish the owner a constant change of kind and color; or, if he prefer it, a loyal blending of the red, white and blue.

Money cannot always command from the fruiterer that fresh condition, that perfection of beauty or that delicacy of flavor, that is to be found in grapes from one's own garden, where one may gather the fruit with his own hand just as it reaches the point of perfect maturity. And, as for the grapes offered for sale in the markets, although they may be cheap in price, they have come many a mile and met with much rough usage, and therefore cannot compare in value with the home-grown samples. From these considerations we do not hesitate to advise every reader, who has even the smallest city backyard, to plant a few vines for the supply of his own table. They will creep over an unsightly old fence, a barren wall or a back verandah, and thus prove ornamental as well as useful.

Among the valuable red grapes for dessert we place the Brighton, a medium sized sample of which is shown in our frontispiece. It takes its name from the town of

Brighton, N. Y., the home of its originator, Mr. Jacob Moore. He raised it from the seed of Concord, fertilized by Diana-Hamburg, so that it is one-quarter European and to this no doubt is due both its delicate flavor and its slight tendency to mildew; while to its Labrusca, or American Fox grape, relationship we may credit the vigor of the vine, and its large, thick, dark green foliage.

The Brighton, when eaten just at maturity, is sprightly, somewhat aromatic and delicious; the pulp separates readily from the seeds without impairing the flavor. When first ready for use the color is a light red, but if left very long on the vines the color changes to so dark a crimson that it is hard to recognise it as the same variety, while its quality also deteriorates.

In season of maturity the Brighton is somewhat in advance of the Delaware, so that, of its season, it may fairly be reckoned the best red dessert grape. No one, therefore, who is planting a small collection of grapes for his own table, should omit a vine of the Brighton; and, if he will take the trouble to remove the small, imperfect bunches, in the early part of the season he will have some magnificent clusters in September for the decoration of his fruit dish.

We do not commend the Brighton to the planter of a commercial vineyard; and, unless we are much astray in our interpretation of the signs of the times, the time is not far

distant, when the great Northwest will be the chief market for Ontario grapes, and therefore we must plant most largely of such varieties as carry well and keep for a long time in first-class condition.

OPINIONS OF OTHERS.

M. PETTIT, Winona, Ont.:—Brighton is not a favorite red grape with those who grow extensively for market in this section. It does not sell as well as Red Rodgers, is fully as subject to mildew, and does not bear regular grapes. If heavily laden one year it will be light the next, and if allowed to hang on the vines after it is ripe loses its sprightly flavor. I think Lindley, Agawam and Delaware are much better.

F. W. BRODRICK, St. Catharines:—The Brighton grape may well be classed as one of our best commercial red varieties. It is a good vigorous grower and a productive bearer. It is a grape of excellent quality for dessert and always meets with a ready sale on the markets. It ripens in good season and is very rarely injured by fall frosts in our locality. It grows well on sandy loam or light gravelly soil, but may be grown with success on heavier soils.

A. W. PEART, Burlington, Ont.:—I have about 60 vines of Brighton eleven years old, and do not consider them as desirable and profitable as some other varieties. It is not so productive as the Worden or Concord, and although of fine quality, its color—a reddish purple—is not distinctive enough to give it a higher price than the black varieties unless it be known to the consumer. It is also subject to mildew.

T. H. RACE, Mitchell, Ont.:—Quite early in the eighties the originator sent me two vines of the Brighton grape to see how they would do in this locality. I have grown them ever since. The vine is a good grower, fairly hardy, but not what I would call a heavy bearer. The fruit ripens before the

Concord, and is of better quality. I have it growing side by side with the Amber Queen, but it is not as strong a grower nor as heavy a bearer as the latter. With me the Amber Queen has never mildewed, and in growth and bearing qualities it has always outstripped the Brighton, and for this section I would consider it a preferable grape. The Brighton, however, is a trifle earlier, a larger bunch, and somewhat more attractive in appearance.

W. T. MACOUN, C. E. F., Ottawa:—There are several varieties of grapes which ripen earlier than the Brighton at Ottawa, but the latter will ripen if the season is fairly favorable. If I were planting six varieties for home use here it would be among them. When mixed with other varieties which bloom at the same time, the fruit sets well, and there is a good crop of it. The quality is very good, and even if the fruit is not thoroughly ripened, as is sometimes the case here, the fruit is usually palatable, as it becomes sweet before quite mature.

W. COX, Collingwood:—The Brighton does well here. I have grown it about 18 years, and I have never laid it down a winter yet. It bears well with us, and the fruit is of such good quality that anyone who buys them once is always ready for them again. I think a good deal of Brighton.

W. WARNOCK, Goderich:—I consider the Brighton the best dessert grape in its season of all the American grapes. It is one of the strongest growers and produces very large bunches and plenty of them. The berries are extra large, dark red, of the finest flavor when used as soon as ripe, but they lose their rich flavor very soon after they ripen, so they should be used quickly after they become ripe. The vine is quite hardy with me, and a regular cropper. I am sure no one will ever regret planting a vine of Brighton if they live to taste its fruit.

Editorial Notes and Comments

SELLING FRUIT AT POINT OF SHIPMENT.

IT is high time for the fruit growers of Ontario to make a change in their methods of selling fruit. No more reckless system could be thought of than the present one, where thousands of growers blindly ship their fruit to consignees in our chief cities without the least idea whether those markets need the shipments. Our country is large enough to take all our fruit at paying prices were it properly distributed, but when it is shipped in the present reckless fashion it is no wonder that first one centre is glutted and then another. Besides, the present system gives the owner of the fruit no word as to the price, and he simply must accept whatever people choose to give him. Such a method of sale would not be tolerated one moment in the grocery trade, or in the hardware business. And why must we give away our fruit to any one who will pay the freight and the commission, and perhaps enough over to pay for the baskets and the picking.

COLD STORAGE FOR FRUIT GROWERS.

THE solution of the question of selling our fruit by contract is undoubtedly in the cold storage. So long as our fruit must be sold within twenty-four hours after it is gathered, we have no alternative—we must ship—and we must accept whatever pittance it may bring. But given an ample refrigerating warehouse at central shipping points, where the fruit grower may have his perishable fruit held for a week or two if necessary for a proper sale, and we believe there would be a complete change in our business, and proper returns for our investments.

SELLING BERRIES ON THE TRACK.

MR. J. C. EVANS, of Harlem, Mo., is advocating the selling of fruit by contract. At a recent meeting of the fruit growers of his state, he said:

“All fruit growers have, at some stage of the game, to learn a lesson. Many of us have learned that lesson long ago. It is one thing to grow fruit; another thing to get rid of it right. Some four years ago, at a convention of fruit growers from several different states, the question of selling direct at the growers’ shipping point was sprung. Those gentlemen said, ‘You never can do it.’ One said it could be done. Now what do we see at this meeting? At such and such a place the growers sold their berries on the track. Four-fifths of the berries this year in Arkansas and South Missouri were sold on the track. Of the 200 cars of fruit from our station not a car was consigned. The time is nearly at hand when no fruit will be consigned to any commission man. It will all be sold on the track. The time is coming when a man who grows a car load of cattle or hogs will have the buyer go there and buy them outright. The day of the live stock commission man is past. The day is coming when all farm produce will be sold on the track. We should encourage the approach of that day. Tell the buyer your fruit or stock is for sale, but it must be sold before a wheel turns.”

THERMAL EFFECTS OF SOIL CULTIVATION.

THE benefits of cultivation of the soil are far more extended than is usually supposed. Primarily the gardener hoes his garden simply to kill the weeds, thinking what a curse they are, causing him such constant labor. Recently it has been plainly

demonstrated to him that shallow tillage, by affording a mulch of fine soil upon the surface and breaking up the capillarity in the soil, conserves that moisture so essential to plant growth during our hot dry months of June and July and sometimes a part of August. Besides this, it has been shown that the mechanical effect of loosening up the soil and making it pervious to the action of the air, is most helpful in rendering available those elements of fertility which would otherwise lie a long time locked up in the ground, but now we are learning that it has also a positive effect upon the temperature of the soil. Seeley (*Mo. Weather Rev.*, 1901) shows from actual tests that newly cultivated soil is 6 degrees warmer at the surface; 5 degrees lower three inches below the surface; and about the same twelve inches below—conditions most favorable for plant growth. The warmer surface soil hastens the process of growth in the plant, and it is a protection against frost. The soil just below the surface being cooler, retards capillarity and thereby retains the soil moisture, while the temperature about the roots is about the same or a trifle higher than the same in uncultivated soil.

LIME FOR SOILS.

A METHOD of determining accurately the quantity of lime to apply to soils to neutralize the acidity has been described by Dr. Hopkins at a recent meeting of official chemists at Washington, D. C. That lime is useful in agriculture has long been recognized in practice, but just in what quantities to apply it, and to what soils, has been a problem. The old warning is expressed in the couplet:

The use of lime without manure,
Will surely make the farmer poor

has deterred many from using it at all. In many cases it would no doubt give splendid results, especially in cold acid soils. Now, if we can definitely determine the acidity of

a soil and the proper amount of lime to apply to correct this condition, we have before us an advance step in soil fertility. Wiley, in an address on the subject, concluded as follows: "Agricultural chemistry, passing from having determined what the soil is and what plants are and how fertilizers can be made and applied, is now advancing to a still higher plane of investigation, to determine how the soil shall be made maximum in production and how the conditions of growth shall secure the maximum of desired qualities."

NITRATE OF SODA FOR TOMATOES.

VOORHEES (New Jersey Expt. Sta.) has found by experiment that the application of 200 lbs. per acre of nitrate of soda to tomatoes in two equal applications during the growing season increased the yield by 3,220 lbs. per acre, and when the same quantity per acre was applied in three equal distributions, the yield was increased 5,880 lbs. This is a sufficient evidence in favor of the judicious use of this fertilizer. It must always be borne in mind that its effect is to increase of the vigor of the plant growth, and in some cases this would mean a proportionate decrease of fruitfulness. For example, Voorhees reports having tried a larger quantity with distinct loss in quality of yield. In one case he used 300 lbs. per acre, applied as above, and the yield was decreased by 475 lbs. over that treated with 200 lbs. of nitrate of soda, because of larger vine growth and later maturity of fruit.

THE KIEFFER SELF-STERILE.

POWELL (Del. Exp. Sta.) reports blossoms of the Kieffer practically self-sterile, and that LeConte is a good pollenizer for it. However, we do not need to worry about a crop failure of this pear, for his records of 1901 show that if two blossoms out of one hundred set fruit the resulting crop will be a heavy one.

THINNING FRUIT.

SANDSTEN (Maryland Exp. Sta.) has been conducting experiments in thinning, and in Bulletin 82 calls the attention of fruit growers to its importance. He says it pays to thin peaches and plums after the June drop, the former to not less than five inches apart and the latter two or three inches apart. Apples and pears should be thinned when about the size of small crab apples, leaving the fruit four or five inches apart.

Among the advantages to be gained are more regular crops, stronger and more shapely trees, less disease, and larger, better colored, more uniformly ripened and more saleable fruit.

These excellent results, however, need not be expected by the fruit grower who neglects the other requisites to successful fruit growing, such as pruning, spraying, fertilizing and cultivation.

That even a worthless orchard can be made to pay by attention to these details has been proved by Mr. Tweedle, of Fruitland; and by many others. Card (Rhode Island Sta.) has issued a bulletin showing the excellent results of three years' work on less than an acre of orchard. Though previously worthless, the third year's crop of apples sold for about \$80; showing that few parts of the farm can be made to pay better than a well managed apple orchard.

THINNING PEACHES AND PLUMS.

PROF. BEACH, of Geneva, has made some experiments in the thinning of peaches and plums, and has not met with such results as would lead him to advise it in commercial orchards. Thinning, he thinks, should constitute the last resort after details of fertilizing, cultivating, draining, pruning, etc., have been attended to. He thinks, indeed, that pruning is the most economical method of thinning the crop.

The professor should mention the varieties treated; for this would, no doubt, be the key of the problem. We have seen too many experiments tried in thinning out the fruit of over-loaded Alexander peaches to doubt its importance. The size of the fruit remaining was doubled, and consequently sold at a proportionately higher price, but the number of baskets gathered was as many from the thinned trees, as from similar trees not thinned.

Prof. Beach does, however, grant "that systematic thinning of fruit, combined with skillful care in other directions, may materially strengthen the tendency of the tree to bear annually."

THINNING THAT PAID.

AFTER all, facts are the best proofs, and these are constantly accumulating in evidence of the advantages to be gained by the enterprising fruit grower by judicious thinning. Of course it will not pay in every instance, and no rule will fit all cases. A young vigorous tree will carry a much heavier load of fruit without its size being lessened than an older tree, while on poor soils even close thinning will fail to produce large sized fruit.

The following effect of thinning was observed by A. T. Jordan (Amer. Agr. 1902) on two trees set in 1897. The set of fruit on one tree was 862 peaches, and on the other tree 852. From the first tree 69.5 per cent. of the total set of fruit was removed, leaving to mature 263 peaches. From the second tree 31.9 per cent. of the fruit was taken, leaving to mature 580 peaches. From the tree which had been most heavily thinned 2.83 baskets of fruit were obtained. The average weight of the peaches from this tree was 4.48 ounces, the price offered per basket by the leading grocers was \$1.00, and the total value of the peaches from the tree was \$2.83. From the tree less severely thinned 3.92 baskets of fruit were obtained.

The fruits from this tree averaged 2.81 ounces each, for which the leading grocers offered but 45c. per basket, making the total value of the fruit from this tree but \$1.76. The immediate financial result of thinning in this case was \$1.07. Further observation of the two trees showed that 46.6 per cent more fruit buds matured on the tree severely thinned during the season than on the other tree. Figured out on the basis of

an acre, there was an advantage in thinning of \$171.20.

Had this experiment been verified in the case of a dozen or twenty instances instead of one, it would of course have much more weight, yet every instance of this kind helps to establish the position we have taken, that with such varieties of peaches and plums as are inclined to overload, and grow small in consequence, thinning pays.

APPLE SITUATION ABROAD.

MR. GLEASON, the general manager of the Gleason-Loomis Cold Storage Company, of Le Roy, N. Y., recently returned from Europe and furnished some interesting information in regard to the apple situation in foreign countries. Mr. Gleason says:

"Those who have not paid special attention to the subject will be surprised to learn of the vast distribution of American apples throughout Europe. Europe does not begin to produce enough apples for its own consumption. In fact, Europe produces only one-eighth of the apples it requires. These apples, which are of indifferent quality, are consumed early in the fall and are practically gone when the American exportations begin to arrive.

"It is a matter of statistical record that between September 15 and December 27 of 1902 apples were shipped from the United States to various European ports in quantities as follows: To Liverpool, the great distributing point of apples shipped to Europe, 1,008,868 barrels; London, 274,190 barrels; Glasgow, 318,431 barrels; Hamburg, 97,647 barrels; other European ports,

58,339 barrels—or a grand total of 1,757,475 barrels of American apples shipped to Europe in three months.

"The amount of the shipments depends very largely on the price of the product. In 1901 the apple crop in the United States was very light, and as a result only 524,889 barrels of apples were exported to Europe as against 1,757,475 barrels last year.

"The average price for the 1902 crop to this date was \$1.50 to \$2.50 a barrel, net at shipping point. These apples would be taken freely at 12 shillings a barrel, or about \$3, for good stock on dock in European ports.

"American producers would have a splendid market for apples in Germany, were they not hedged about with laws, regulations and restrictions, like complaints of the San Jose scale, etc., which are intended to protect the German fruit growers and certainly have the effect of keeping American fruit out of the German market, and may be called reprisals, for in effect it is a continuation underlying the fight made on American pork."



FIG. 2586. C. C. JAMES, M. A.

C. C. JAMES, M. A.

DEPUTY MINISTER OF AGRICULTURE FOR ONTARIO.

IT is a fortunate thing for a province or a country when its chief officers are honest, progressive, courteous and obliging. Such an officer is C. C. James, Deputy Minister of Agriculture for the Province of Ontario.

Mr. James was born in Napanee, the county town of Lennox and Addington, on the 14th June, 1863. His parents were both born in Canada. His paternal ancestors were natives of the county of Wexford, Ireland; and his mother was a descendant of the Canniff, Dulmage, and Huff families,

who, with many other United Empire Loyalists, came to Canada after the revolutionary war of 1776-1783 and settled around the Bay of Quinte.

Like most of our prominent Canadians, Mr. James commenced his education in the public school of his native town. He took a complete course in the Napanee High School, which at that time was one of the leading schools of Eastern Ontario, and subsequently entered Victoria University, Cobourg. At the university he was known as a hard working and successful student,

clean-cut and scholarly, with a taste for literature and natural science. He won the gold medal in natural science and received the B. A. degree in 1883—recognized by his fellow students and the college staff as a young man of much promise. From January, 1883, to January, 1886, he held the position of assistant master in the Cobourg Collegiate Institute, teaching science and some other branches. While thus employed he took a special post-graduate course in chemistry and mineralogy at Victoria University, and subsequently went to Cambridge, Mass., for a short course under Dr. Richards, of Harvard University.

In June, 1886, he was appointed to the professorship of chemistry at the Ontario Agricultural College, Guelph, a position which he filled with marked efficiency, teaching and illustrating the principles of chemistry and showing their practical application to agriculture in such a way as to make the subject one of much interest and profit to the students in attendance at the college.

Soon after his appointment at Guelph Mr. James married Miss Fannie Crossen, daughter of the late James Crossen, of Cobourg, and commenced housekeeping in the Royal City. Mrs. James was a noted entertainer, and an invitation to her hospitable home was much appreciated by both students and professors. The only child in the family is a bright and promising boy.

In 1891 the Hon. John Dryden, Minister of Agriculture, chose Mr. James for the responsible position which he now occupies as

Deputy Minister of Agriculture. In this position Mr. James has many and important duties to perform—preparing the reports of the Provincial Bureau of Industries, looking after the publication of agricultural bulletins and reports, attending to a large correspondence, dealing with the public in absence of the minister, and representing the department on the public platform throughout the country; and in all these capacities he has shown himself the right man for the place—able, tactful and courteous. His work in the department soon proved him a good executive officer, and his visit to different parts of the province has established his reputation as a public speaker, always clear, vigorous, instructive and pleasing.

Mr. James is a member of the Board of Regents of Victoria University, and President of the Ontario Historical Society. For a number of years he spent time and money in collecting books and other publications on the early history of Canada, and not long since he made a unique and very valuable donation of Canadian historical works to the library of Victoria University.

As an author Mr. James is well known to the people of Canada by the excellent elementary work on agriculture which he wrote a few years ago. This book is authorized for use in the public schools of Ontario, Nova Scotia, New Brunswick, Manitoba and the Northwest Territories, and an American edition has been published by Appleton & Co. for use in schools across the line.

ORCHARD MANURES.

IT is not too late to apply soluble manures to fruit trees. If it is desired to encourage growth in a fairly healthy tree apply, say, from a quarter to 2 lbs. of nitrate of soda on the ground round the area of the roots. Sprinkle it on the ground evenly well

out from the trunk, and fork it in; later rains will wash it down to the roots. The quarter of a pound mentioned is for a tree two years old, and the 2 lb. for one, say, 10 or 12 years old. An old warrior may have more.

If the tree makes good growth but does not fruit well, on no account apply nitrate of soda, or other nitrogeaneous manure. In this case potash may be useful but the best plan is to omit all manure and summer prune, allowing no shoots to grow more than a few inches. Not only nip off the shoots, but rub off all that are too close together.

For trees which bear, but the fruit is not

as fine as you think it ought to be, an application of nitrate of soda, superphosphite, and sulphate of potash may be desirable. For a tree, say 6 ft. to 8 ft. high, and as far across, perhaps 1 lb. nitrate, 3 to 6 lb. superphosphate and 1 lb. potash may be scattered over the ground round the tree from 3 ft. to 5 ft. from the trunk, and forked in.—*Garden and Field.*

STEADY GROWTH OF TOMATO INDUSTRY.

IN response to an inquiry about the extent of the canning industry in his country, the American Agriculturist has received the following from W. G. Dawson, vice-president of the Pennsylvania Horticultural Society: Since 1870, when the first canning house was established in Dorchester county, Md., the industry has steadily grown, and in 1902 there were twenty-four canneries in operation. Peas and tomatoes constitute the bulk of the pack. It is hard to understand why a large amount of corn is not packed in a section so well suited for growing this crop. It is interesting and instructive to consider briefly this canning industry, which has assumed such large proportions in many sections of the country. Let us take, for example, the one Maryland county just mentioned, and the one item of tomatoes.

During the past packing season the output was 500,000 cases, or 12,000,000 cans. A conservative estimate of the value of this product is \$850,000. To obtain the necessary fruit, there were 5,000 acres cultivated in tomatoes, under contract between grower and canner. The actual packing is all done in about two months. In this particular section the crop is contracted at so much per ton. Usually the price is \$6 per ton, though \$8 to \$9 per ton was given the past season. The yield has a large range—all the way from three to fifteen tons per acre. As the entire Delaware and Maryland peninsula, comprising twelve counties, is very largely interested in this canning industry, this one example gives some clue to the magnitude of the business.

THE BITTER ROT IN APPLE.

THIS evil, to which reference was made in our December number of last year, is a serious one in some sections, and alarming because progressive. A few years ago we observed the first indications of the pit marks upon some fine large Baldwin apples grown in our lake shore orchard at Maplehurst. We thought little of it then, supposing it would soon pass away; but each year since its first appearance it has been spreading, until now it has shown itself

over about forty acres of orchard, rendering unsaleable a large quantity of the very finest samples of Baldwins, Spys and Kings.

Like the apple spot, at first it seemed to be confined to a certain limited number of varieties; but alas! it has now attacked many sorts which we counted immune from its ravages. Ben Davis, for example, which is such a vigorous grower, and so little subject to codling moth with us, is not exempt from bitter rot, nor yet the Hunts-

man, that fine new dark red Illinois apple, which brings almost double the price of Ben Davis.

Stinson (Mo. Fruit Sta. Rept. 1900) says he had much more difficulty controlling Bitter Rot with Bordeaux than scab. In one experiment, for example, he sprayed his Ben Davis five times, and yet only 60 per cent. of the fruit was free from bitter rot, while on unsprayed trees practically the whole

crop was ruined by it. In another part of the orchard he had a little better success, with only four sprayings, for 78 per cent. was free, while on trees untreated only 14 per cent. was clean. Speaking of the Huntsman, he says it was sprayed three times and gave 83 per cent. free from bitter rot and 92 per cent. free from scab; while on unsprayed trees only 48 per cent. was free of bitter rot and 69 per cent. of apple scab.

SHIPPING GRAPES TO BRITISH COLUMBIA.

SIR,—In the October number of the *Horticulturist* you refer to the possibility of shipping grapes from Ontario to British Columbia, and express the opinion that the distance and expense is too great. You are, however, probably aware that small shipments have been received here. Early last season some large shipments were made by Mr. A. Finbow, of Beamsville, who kept the local market well supplied for two or three weeks, when he withdrew, in order to avoid over-supplying a limited demand and consequent reduction in price, on receipt of a telegram informing him that a shipment had arrived from Mr. Wm. Fretz, of Jordan. The fruit, for the most part, arrived in good condition, in three and four pound baskets, and each shipper, we believe, received about \$300 each from sales, about one-half of which would be paid to the express company. Of course the grapes had to compete—and they did so successfully as to price, after netting the shippers about 3c. a lb.—with the California article, chiefly the large, sweet varieties, immense quantities of which are sold in British Columbia, and which will not be easily displaced. However, if the two gentlemen referred to propose to ship next season, we would advise that some understanding be arrived at in order to avoid over supply and loss.

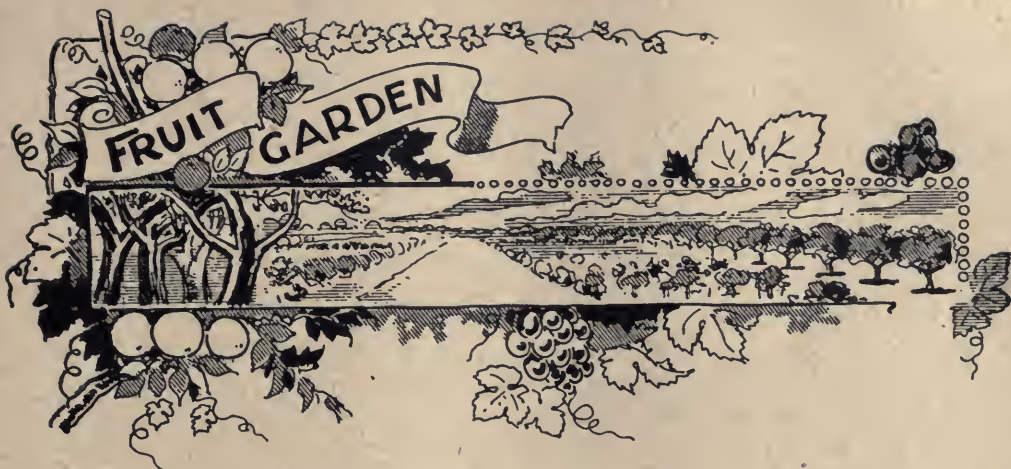
By the way, speaking of California fruit, one cannot help but deplore the fact that, owing to superior methods of packing, and

packages, this article finds such ready sale in preference to the Ontario fruit where brought into competition in the Northwest and British Columbia markets. Reasonable rates and choice fruit value will not secure and hold the trade—the baskets, packages and boxes must be so constructed as to display the fruit to best advantage. Certainly it is wearying, to say the least, to note the time being wasted and markets lost while Ontario fruit men meet in their annual gatherings and discuss at great length the value of this new expensive crate, that new fancy box, this and that method of packing. Why not adopt the methods of packing, boxes, crates, baskets and all, of the Californians, than which there are none better, import expert packers, if necessary from the Pacific State to visit the different centres and instruct the growers; discontinue these useless discussions and make an organized effort to place the Ontario fruit in every town in Manitoba and the Northwest.

As a result largely of the adoption of Californian methods, British Columbia shipments of fruit to those points are increasing rapidly, and, in a few years, unless Ontario growers and shippers bestir themselves, this province will supply and control the entire market of the Territories and prairie province, notwithstanding the superior flavor of the Ontario fruit.

Vancouver, B. C.

A. W. FINBOW.



CO-OPERATION IN THE FRUIT INDUSTRY

SUMMARY OF ADDRESS DELIVERED BY W. A. MacKINNON, CHIEF OF THE FRUIT DIVISION, DEPARTMENT OF AGRICULTURE, OTTAWA, BEFORE THE MEAFORD FRUIT GROWERS' ASSOCIATION.

I.—ORCHARD MANAGEMENT.

TO be really effective, co-operation should begin with the planting of the orchard, or rather with the selection of varieties. The group of growers who are united for the purpose of making a profit out of the product of their orchards should agree in advance to plant only a few of the very best commercial varieties which succeed well in the soil and climate which is at their disposal.

The CULTIVATION of the orchard should be uniform and thorough, the object being to apply such methods as will yield the best results. It will not do if some of the growers are careless or haphazard while others are giving their orchards every possible chance to do good work for them.

PRUNING also is a matter of the first importance, and should be thoroughly attended to from the start—all the orchards being pruned on the same scientific principles.

SPRAYING must be carefully done and by

experienced hands, or it will only lead to discouragement. A group of growers could well afford to possess a power spraying outfit amongst them, and to make it the business of a couple of men each year to spray all their orchards in succession.

The object of co-operative orchard management should be to secure from all the members a *high average quality of fruit*, and to minimize the percentage of "culls," which will be a drag upon the commercial operations to follow. We have assumed that the members are just beginning to plant, but co-operation can attain at least part of its good results in the case of old orchards. These may be top-grafted to profitable varieties, may be gradually pruned into shape, and kept clear of insects and fungus diseases, while they may be brought under cultivation if the circumstances warrant such a step. In many old orchards the first thing to be done is to remove one tree out of every six or eight in order to admit sufficient light and air to those that remain.

2.—GRADING, PACKING AND MARKING.

GRADING is the most essential step towards successful marketing of fruit. It is particularly true of the British markets that they are continually asking for large quantities of fruit of one quality and of one variety. The most serious complaint they have to make against shipments from Canada is that they are "irregular." It should, therefore, be the object of a co-operative association to place considerable quantities of uniform grade and variety upon the market. This they are in a position to do, if all the members will send their fruit to a common packing house, where it can be impartially graded by experienced hands. The brand which the association has adopted will soon become well known as being thoroughly reliable, and there will almost certainly be a demand far greater than the members are able to supply.

The PACKING of the fruit when graded should be carefully looked after, especially when shipments are sent to distant points. All packages should be tight when commencing their journey, and high class fruit will carry best in boxes, the tender varieties being wrapped individually in paper.

MARKING, if properly done, will be the only introduction which a buyer will require. It should be so thoroughly reliable, both as to variety and grade, that inspection

will never be required—unless it is to ascertain how the fruit has stood a long journey. The marking should also include a clear and attractive advertisement for the co-operative association which is shipping the fruit. Pencils and chalk should not be used for the essential marks on any package of fruit; either a well cut stencil or a large rubber stamp should be employed.

3.—MARKETING.

MARKETING is a word which covers two operations, namely those of buying and of selling. Dealing with the latter first, it will be apparent that if the fruit of a number of growers is judiciously distributed in markets where the demand is greatest, and if accounts are kept by one manager for all, there is likely to be a great advantage gained and a great economy effected.

A similar economy will result if all material, such as poisons, packages, implements and so on are purchased wholesale by the manager and distributed to the members as they may be required.

Finally, a co-operative association can, through its manager, obtain much more attention and consideration from transportation companies, commission men and others with whom they may have to deal, than would be accorded to the members if acting individually. "In Union is Strength."

SALEM GARDENS.—The city of Salem, Mass., at least the old colonial city of Salem that still remains, is semi-city and semi-country. It knows nothing of lawns or even of front gardens. The houses stand in uneven lines on or near the street, with no suggestion of nature about them until one passes through to the rear. Then he finds himself looking out upon a most ample and entrancing old garden, surrounded by a high board

fence extending back for hundreds of feet and filled with fruit trees and old fashioned flower beds with box borders. In the retirement of one of these old gardens one is almost as secluded and nature-begirt as in the woods and fields of genuine country. But of all this little is known by those who do not find their way into these secluded spots.—*Country Life in America*.

CO-OPERATIVE EXPERIMENTS IN RECORDING THE YIELDS FROM INDIVIDUAL TREES OF THE SAME VARIETY.

BY

W. F. MACOUN,

HORTICULTURIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

AT the Central Experimental Farm, Ottawa, the crop of fruit from each individual tree is recorded every year. One is thus able to tell at the end of a series of years how much each tree has borne. The yields for the past five years were recently tabulated, and great variations were found in the total yields of trees of the same variety planted at the same time and growing under practically the same conditions.

As instances: One tree of McMahon White apples yielded $36\frac{3}{4}$ bushels, while another planted at the same time and under practically the same conditions yielded only 17 1.16 bushels, or less than half as much.

One tree of Patten's Greening yielded 17 1.16 bushels, while another tree only yielded 3 15-16 bushels, less than one-fourth as much.

A young tree of Wealthy yielded $47\frac{1}{4}$ gallons, while another of the same age only yielded 12 gallons.

Experiments are now being conducted at the experimental farm by top grafting with scions from productive and unproductive trees, to determine how far the productivity and unproductiveness of the trees is constant. The individuality of trees has long been noticed; but few figures have been published to prove this. The results obtained at the farm are hence of particular value.

If scions from productive trees will develop into productive trees when grafted, and if scions from unproductive trees will produce trees which are poor croppers, it is

very important that scions should be taken from the best yielding trees. This is done by some fruit growers.

In order that fruit growers may obtain more knowledge of the great variations in yield of trees of the same variety at the same time and under the same conditions, we desire to start a co-operative experiment.

On application to the Horticulturist, Central Experimental Farm, Ottawa, six pieces of zinc, bearing six consecutive numbers, with wire attached, will be sent to each person. These pieces of zinc when received should be attached to six bearing trees of a single variety of apple, pear, plum or peach, the trees to be the same age and growing under the same conditions of soil and culture. The yield from each tree should be written in lead pencil on the zinc when the fruit is harvested. This yield should include the windfalls, and the windfalls gathered should be marked as such on the zinc labels. The quantity of picked fruit should also be marked as picked fruit. If it is not convenient for the fruit grower to record the yields in the orchard on the pieces of zinc as suggested, he may record them in his note book direct.

When convenient later in the autumn, the yield for the year should be entered in a note book, the number of the tree being entered so that the yields from each tree may be kept separate. The yields from these trees should be recorded until it has been fully demonstrated that one tree is or is not more productive than another. All that is asked of the experimenter is to report the yield

from each individual tree each year to the horticulturist, Central Experimental Farm, Ottawa.

As grafting will, in all probability, become much more general among fruit growers in the near future, the importance of knowing

that trees vary widely in productiveness is easily seen. If the fruiting habit is continued in the grafted scion, as has been fairly proven by experimenters, it is most important that scions should be taken from the most productive trees bearing the finest fruit.

PLANT STUDY—TERMS EVERYONE SHOULD KNOW.

BY

W. CLEMONT MOORE.

A KNOWLEDGE of some of some of the the terms used by botanists, and why they use them, we are sure cannot but prove beneficial to all of those who are beginners in the art of floriculture, hence we proffer the following lesson on some of the parts of the plants, which should first be considered.

Cryptogams—Plants which do not bear flowers. Fig. 1 represents a cryptogamous leaf.

Phanerogams—Plants which bear flowers. This class of plants presents a wide and varied collection. Fig. 2.

Embryo—The beginning of plant. Fig. 3.

Fibrous Roots—Are those which send out fine rootlets, but have no main stem. Fig. 4. Fleshy roots are principally biennials, that is, they complete their growth in two years. Fig. 5.

Exogenous—Applied to stems whose wood fibres are in regular circles around a central pith. Fig. 6.

Endogenous—Stems whose wood fibres are arranged irregularly through the stem

instead of the form of a circle. Fig. 7. Net-veined and parallel-viewed leaves are shown in Figs. 8 and 9 respectively.

Calyx is the small circle or cup which holds the flower. Fig. 10.



FIG. 2587.

WHEN TO PRUNE

FROM THE 20TH CENTURY FARMER.

SOME one has said that the time to prune is when your knife is sharp. It can hardly be said that one time is as good as another, yet we do not believe that the season of the year makes any great difference. Each season has certain advantages and disadvantages. A wound made in June will probably heal quicker than if made at any other time, and for this reason June pruning is generally recommended.

We cannot entirely concur in this recommendation, and for several reasons. In the first place, one cannot see as well how to do the work when the tree is covered with leaves as when the limbs and twigs are bare. Another objection is that growth is at its height at this season, and the removal of a part of the tree causes a shock by disturbing the sap circulation. The injury thus produced is quite serious if a large amount of wood is removed.

Pruning is a deadening process, especially when done during the growing season. An injury which checks the growth of a tree causes fruit buds to form. This is one of the results of June pruning, as it is then the buds are forming for next year's crop. Pruning at this season is sometimes recommended on this account. However, it is seldom necessary to stimulate the production of fruit buds. The problem generally is how to get good fruit from those buds which do form. June is one of the very busiest months of the year, and, other things being equal, a season when other work is less pushing should be chosen.

Winter is a good time for cutting out dead limbs of large trees, but the weather is usually too cold for the delicate operation of pruning young trees. Pruning outside of the growing season is objected to on the ground that the wound dries out and does not heal over readily. The cut edge of the

bark dries back farther than if the wound is made during rapid growth.

Spring pruning sometimes results in the sap exuding from the wound, similar to the "bleeding" of a grape vine pruned during the growing season. Pruning trees while dormant sometimes causes a troublesome growth of suckers or water sprouts. It does not stimulate wood growth, as some would have us believe, for the more a tree is pruned the slower will it increase in size. Where a part of a limb has been removed the rest will grow faster than before for a little while, but this increase in growth will not make the limb as large as it would have been if a part had not been removed by pruning.

Dormant pruning does not check growth and deaden a tree as does early summer pruning. Sap circulation depends upon leaves, and when a portion of these are removed a corresponding portion of the circulation is checked and the shock is felt clear to the roots. When a tree is dormant there is no growth to check or circulation to disarrange. The pruning simply leaves the tree with a larger proportion of roots than limbs, causing a more vigorous growth in the limbs which remain.

As was stated in the beginning, we do not believe that one season is so very much better than another for pruning. We have endeavored to throw some light on the subject in order to help each one to decide the question for himself.

The ideal time to remove a limb is just as soon after it starts as possible. Every limb is first a bud, and it would be better to rub off the bud than to allow the limb to grow and then remove by cutting. However, it is seldom practicable to prune in this way, though it is possible to remove most limbs which need removing while quite small.

IMPORTANT FACTORS IN PLUM CULTURE.

BY

PROF. F. A. WAUGH,

MASS. AGRICULTURAL COLLEGE.

THE principal factors which go to make up the variety as it is known to the practical plum grower may be roughly enumerated as follows: 1, hardiness; 2, habit of growth; 3, fruitfulness; 4, pollination affinities; 5, resistance to disease; 6, season; 7, quality; 8, ability to stand shipment. Plums vary greatly in this quality; but in almost every locality the list of varieties which may be relied on is so large that growers have not been very attentive to this matter. In the northwestern states only, where winters are very severe, it has been found that none but the Americana and Miner-like varieties can be depended on; and consequently they have practically supplanted all others.

Many plums now in cultivation are cursed with the most objectionable habits of growth. This is true of the native plums as a whole, and almost without exception, They are wild and wayward growers. They seldom make good, nicely shaped tops. They may be symmetrical and comely enough during youth, but old age brings out their wild and untamed nature. They resent pruning and training. The tops get so full of zig-zagging twigs, dead branches and thorns that the blackbirds can't get in to build their nests and are obliged to fly away to the apple orchard. I think that those enthusiastic western plant breeders who are bending their most praiseworthy energies to the production of native plums with larger fruit and thinner skins, might well spend some pains to get a variety with a tree amenable to the practices of civilized horticulture. There are very few plum trees, however, of

any type or class, which make comely, manageable trees. Burbank is sprawling, and Wickson grows too straight and willowy. Gen Hand makes too much wood, while McLaughlin doesn't make enough. These things have to be taken into account in the selection of varieties.

Most varieties bear too much and too often. Many varieties will bear themselves to death if left alone. There are few sorts which one need reject on account of shy bearing, though there are a few, of which Gen Hand and Wickson are perhaps examples. For the rest, the grower has rather to plan for careful thinning of the fruit. The grower should select somewhat carefully with a view of proper pollination. This, however, is a subject by itself, and has been so often discussed of late that we may safely let it pass here.

The principal diseases which attack the plum are monilia, or ripe rot of the fruit, and black knot. Both of these diseases can be controlled by proper management; and the careful plum grower will therefore take small thought for the selection of varieties which shall be exempt. Most of the so-called "iron-clad" and "immune" varieties, moreover, have proved not to be so ironclad nor so immune when it came to the test. We used to hear that the Japanese plums were not subject to the attacks of the black knot; but we now know better. There are measurable distances among varieties in their susceptibility to disease, and this may be a consideration, though hardly ever a prime consideration, in the selection of varieties.—*American Horticulturist*.

WILLOWS AS FUEL.

BY

W. RICKARD, M. P. P.,

NEWCASTLE, ONT.

WE have in our Dominion a great country—great in extent, great in its natural resources and undeveloped wealth, great in its future prospects, and destined to be the home of many millions of people. We are so situated geographically that the question of a supply of fuel will ever be an important one. While we have practically inexhaustible mountains of coal in the far east and in the far west, and doubtless much more yet undiscovered, notwithstanding all this, as far as we are concerned, what we call old Ontario is almost entirely dependent upon a foreign country for a fuel supply. We all know that in the back countries wood has been the principal fuel for people living in the country. We also know that in many of the old settled portions the supply of wood is almost entirely exhausted, and it is somewhat strange to me that practically no effort has been made to replenish the same. I consider the question of reforesting by propagating forest trees on land not valuable, also on the highways and along line fences, not only for the purpose of providing a supply of fuel, but for other purposes as well, to be one of the most important that can occupy the attention of not only the farmers and land owners of the country, but also the earnest and serious consideration of every legislative body in our Province of Ontario, from the local municipal council up to the Legisla-

ture. I know of no more important subject, nor one in which some of the surplus could better be spent than in helping on the good work of propagating forest trees.

But to come down to the matter of a practical suggestion to the farmers or land owners of my own county, Durham, applicable more especially to the front townships, let me say, while I strongly advise a liberal and judicious planting of trees on all side roads and concession roads, and other appropriate places, with a view to gain benefits in various ways, I want further to say that of late it has come very forcibly to my mind that the much despised willow may in very many instances be used to good account. In a great many cases there will be found some spot on the farm that might be considered waste land, and where there may be running water or abundance of moisture. In such places I would say, go right to work without any delay and plant the willow. It is easily planted, will grow rapidly, and in a very few years you can cut the top off for firewood, thus securing a partial supply of fuel that will for certain be out of the reach of labor strikes or industrial contention—a supply that will be found on your premises and which will cost only the cutting. I venture to say that if this suggestion is acted upon, where the conditions are favorable, some one will unhesitatingly say that a good thing was done.—*The Sun*.

TRANSPORTATION OF FRUIT

CHARGES TOO HIGH—COMPLAINTS AGAINST
THE EXPRESS COMPANIES—PILFERING OF PACK-
AGES—FREIGHT ACCOMMODATION INADEQUATE.

THE Niagara Peninsula United Fruit Growers' Association is the rather formidable name of a very progressive body of commercial fruit growers who hold their meetings quite frequently in various parts of that district.

At one of their recent meetings at St. Catharines the following report was presented by Mr. C. W. Vanduzer, chairman of the transportation committee, and was adopted:

That having taken into consideration the present condition of the fruit industry of this district with regard to carrying companies, both as to services and accommodation furnished and rates of carriage exacted, we have arrived at the following conclusions, to which we respectfully call your attention.

TRANSPORTATION BY EXPRESS.

1. Owing to the very rapid expansion of the volume of trade in fruits during the past decade, the accommodation for receiving and handling shipments at many of the shipping stations throughout this district have become quite inadequate, considerable improvement in the way of suitable platforms and covered sheds is urgently needed.

2. Fruit being of a perishable nature it is very desirable that all shipments be sent forward as rapidly as possible after arriving at a period of maturity. Lack of proper help to receive and forward consignments promptly has however frequently resulted in loss and annoyance to the shipper and to his customers. Owing to frequent changes in the weather conditions it is essential that the shipper be allowed the latest possible moment previous to the departure of trains to

prepare and deliver his shipment to the express company.

3. Numerous complaints of the pilfering of packages in transit have been made to your committee. This should be remedied and explicit instructions given company's employees, looking to the abatement of this evil.

4. The item of packages is a large and ever increasing expense to the shippers, and it is considered that in all cases when the consignee returns the empty packages in good order to the express company that they should be handled with care and some assurance given that they will be returned free of charge in good condition to the point of shipment.

5. It is the unanimous opinion of your committee that a substantial decrease in the rates should be insisted upon by this association. The present high rates in force have resulted in a very great hardship to thousands of shippers in a season of full crops resulting in many instances in the shipper becoming quite discouraged in his efforts to his fruit products, which, in consequence, frequently remain ungathered and lie rotting in the orchards. It is believed that a lower express rate would result at once in giving an impetus to the fruit trade, in doubling the volume of shipments handled by the express companies, and bring about a state of affairs which would be more satisfactory to producers, carriers and consumers alike. While it is felt that in a general way the rate is much too high, there are several points to which the companies should give special attention with a view to encouraging shipments, not-

ably the city of Quebec and vicinity and all points in Manitoba and the Northwest.

It is hoped that every effort will be made by this association to urge upon the express companies the necessity of a general revision of rates with a view of affording some relief to the shipper. We believe that such action will at once result in a substantial increase of the business of the companies as well as giving satisfaction to the individual fruit grower.

TRANSPORTATION BY FREIGHT.

1. The supply of suitable well-ventilated cars for the carriage of fruit shipment by freight is very inadequate. A large increase in the number of suitable cars for this purpose is urgently needed.

2. A better system of handling local shipments and more prompt delivery is daily be-

coming more necessary. The volume of trade is now sufficient to justify the railroad companies devoting special attention to giving this commodity special despatch in local car loads as well as car loads.

3. It is again pointed out that a minimum of 24,000 lbs. of fruit in an ordinary car is altogether too great. This should never exceed 20,000 lbs., and it would be much better if only 18,000 lbs. as obtained in many of the fruit sections in the United States.

4. All classes of mixed fruits in baskets or boxes should be carried in car lots at the fourth class rate.

Apples and pears in barrels, which are now fifth class in car loads, should be put in class 8, which certainly carries as high a rate as apples. Shipments will stand leaving any margin whatever for the shippers.

TALK ABOUT APPLES.

THE old Scandinavian traditions represented the apple as the food of the gods, who, when they felt themselves to be growing old and feeble and infirm, resorted to this fruit for renewing their powers of mind and body, says the Chicago Record-Herald. The acids of the apple are also of signal use for men of sedentary habits whose livers are sluggish in action. These acids serve to eliminate from the body noxious matter, which, if retained, would make the brain heavy and dull or bring about jaundice or skin eruptions and other allied troubles.

The ancient practice of taking apple sauce with roast pork, rich goose and like dishes is based on scientific reasons. The malic acid of ripe apples, either raw or cooked, will neutralize any excess of fatty matter engendered by eating too much meat. Fresh

fruits, such as the apple, the pear and the plum, when taken ripe and without sugar, diminish acidity in the stomach rather than provoke it. Their vegetable salts and juices are converted into alkaline carbonates, which tend to counteract acidity.

A good, ripe, raw apple is one of the easiest of vegetable substances for the stomach to deal with, the whole process of its digestion being completed in 85 minutes. Besides these medicinal qualities of the apple, it has great virtue for local applications. The paring of an apple cut somewhat thick is an ancient remedy for inflamed eyes, being tied on at night when the patient goes to bed. In France a common remedy for inflamed eyes is an apple poultice, the apple being roasted and its pulp applied over the eyes without any intervening substance.

LAYING OUT AN ORCHARD

THREE objects should be considered in laying out the orchard: symmetry of appearance; economy of space; and facility for future care. In California, where millions of trees are planted annually, various methods are used. Many are now planting in what is known as the triangular or alternate system. This method gives more trees to the acre than the square system, and in case of apple trees, every other row can be planted to peaches. As the life of the peach tree is short, several crops of fruit may be gathered before any serious damage is done the apple trees, and before crowding, the peach trees can be removed. In laying out an orchard to be planted in this manner, take three pieces of timber one by two inches, and of the length that the trees are to be apart. Miter and

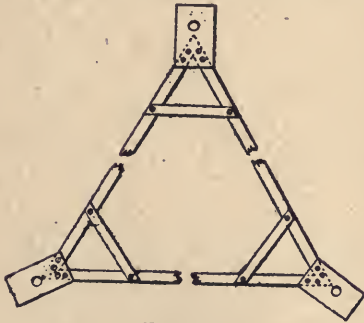


FIG. 2588.

fasten the corners together with pieces one inch thick and six or eight inches in size. These should be fastened firmly with two-inch screws. To make the triangle strong, the pieces should be turned on edge. After the triangle is fastened together, measure off the exact length it is desired to have the trees apart, and bore an inch hole through each corner of the boards, being careful that the holes are exactly the same distance apart. Place the three braces across the corners, and the triangle is completed. Stretch a line or a wire on one side of the track to be planted, the proper distance from the fence,

place two corners of the triangle exactly on the line and set a stake through each hole on the line, also one in the third corner. Move



FIG. 2589. PLANTING BOARD.

the triangle along the line, placing one corner over the stake and the other corner on the line and drive the stakes as before. After the first and second rows are staked off, only one row is staked at a time, while the two corners of the triangle are kept over the last row of stakes. There should be a person at each corner of the triangle.

After the stakes are all set, bore an inch hole in each end of the board, four inches wide and six or eight feet long. Cut a notch in the centre, place it against the stake, drive a stake through each hole in the end of the board, and remove the centre one. The hole is then dug, and when ready to set the tree, lay the board over the stakes and place the tree in the notch. The same plan can be used in laying off an orchard by using a square instead of a triangle: All the measurements must be exact, or the triangle will not fit when placed over the stakes. In this way it is no trouble to keep the rows straight, no matter what length they may be. The stakes should be fifteen to eighteen inches in length, and somewhat smaller than the inch holes in the triangle, so that they will work easily.



FIG. 2590. ORCHARD PLANTING ON THE TRIANGULAR SYSTEM.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

HOW EVERY CITIZEN CAN IMPROVE HIS NATIVE TOWN.

DR. FLETCHER'S ADDRESS BEFORE THE RENFREW HORTICULTURAL SOCIETY.

DR. FLETCHER began by a reference to and commendation of the good points in the town noted on the letter paper on which he had been communicated with; and from this stated the broad difference which was apparent between the border towns of Canada and the States; the comparison not being favorable to the Canadian towns. The Americans blew their own horn a great deal more loudly, but they endeavored to live up to it. Yet there was no country on this globe so good to live in as Canada; it was without an equal, and was getting to itself every comfort and luxury. Renfrew had done well already in the way of advancement, but there were still some things to be improved. The American believes he lives in the best town in the world. If the people of Renfrew became imbued with the American idea, and believed that theirs was the best town, they would do more to make it so. Prosperity comes from bringing outsiders in. What could each citizen do to improve the town. First, be proud of the town; second, do everything possible to back up that pride. Definite action was what was necessary. Renfrew evidently had an active mayor and an active M. P., and the rank and file must now move forward with a definite purpose.

Each must remember the whole time that he was a citizen and that it was his duty to make the place attractive. Since he had come to town he had noticed some places with nice gardens; but more without them. This could be improved and at little expense. A few creepers over a verandah add greatly to the appearance of a place. No papers or broken sticks should be left lying about. One person setting a good example in improving the beauty and tidiness of his premises was quickly imitated. At Ottawa Lady Minto had taken an interest in improving the city and had offered prizes to the persons who improved the general appearance of their house and grounds. To start the work of civic improvement, begin with the home garden; and incidentally Dr. Fletcher remarked that the young man who didn't care for flowers and babies was hardly worth associating with. People who love flowers are happy, are considerate of others; selfishness does not thrive among those who love flowers. Among the shrubs which he particularly recommended for planting were Rudbeckia (golden glow) and Spirea van Houti. The large flowering Japanese hydrangea was also good, easily propagated, and in clumps of three or five is very beautiful. Three or five are better than four, getting

rid of the evenness. Avoid straight lines. Have natural curves. Perennial phlox was good, and of out-door geraniums he mentioned particularly Carmen Sylvia (white), Sam Sloan (crimson), and Jacqueminot (crimson). The Rambler roses were beautiful. He thought they could be grown here—(Mr. E. H. Stevenson from the audience said certainly they could)—but would need protection in winter. Nothing was of so much importance in the beautifying of a town as grass. Touching on this point Mr. Fletcher denounced "Lawn Grass Mixtures." What was wanted was not a mixture of grass of different texture and different colors, but one grass. Nothing was better for a lawn than our own Canadian "June" grass—also known as Kentucky blue grass and spear grass. A little White Dutch clover might be put with it, if desired. Dr. Fletcher spoke of the advantage to Renfrew people of having nurseries here, from which they could get good and tried trees and shrubs. He also at different points in his address quoted from "The

Hints for City Improvement," printed on a large card by the Hamilton Civic Improvement League, a copy of which was lying on the speaker's desk. He thought it would be well if the whole list of "Don'ts" was published here. Touching the hint "Don't Spit on the Sidewalks," he remarked on the great change that had come over the Americans in the last few years. It was noted as a nation of "spitters." Yet to-day comparatively little spitting was done on the streets or in the cars there, simply because the people had come to the conclusion that they might do harm to others, might spread consumption, by spitting. For considerably more than an hour Dr. Fletcher held the interested attention of his audience, by a pleasant address in which there was incidentally introduced much teaching of high morality. After several questions had been answered by Dr. Fletcher and the chairman, a vote of thanks, proposed by the mayor and Rev. W. M. H. Quartermaine, was heartily carried and tendered to the speaker of the evening.

THE OLD FOREST TREES.

SIR,—On page 59 of the February number some one finds a big fault with the new settler for "guilty thoughtlessness" in not leaving here and there as he clears the forest away to make a farm, "single specimens of those grand old maples, pines, elms, etc., to be the chief ornaments of the homestead, etc." Now, every one knows some of something, but no one knows all of everything. Those "settlers" know quite well that it would be utterly useless to leave one or more of those grand old trees for ornament, because the first gale will bring them down. Where they grew they had the protection of other trees, and so did not root strong enough to stand alone. The observing man will note that the edge of old forests is always tangled more or less by uprooted

trees where exposed to strong winds. No, ornamental trees must be planted, and should be very young so they can prepare anchors as fast as they are set sail. But I do think settlers are "guilty of thoughtlessness" in not planting ornamental trees as soon as the streets are properly lined out, and also thickets for sheltering stock yards. How grateful we feel to those who went before us, when we see the streets shaded by beautiful trees. Sometimes their beauty is marred by crookedness, too close planting, etc., but they did the best they could, and we will do well by doing better, according to our privileges and light. But better or worse, by all means plant trees.

Berwick, N. S.

D. C. CROSBY.

CIVIC IMPROVEMENT WORK

HINTS TO OUR SOCIETIES—WHAT TO DO AND
HOW TO DO IT—PARKS—BATHS—BILL BOARDS—
COLLEGE STUDIES—SCHOOL GARDENS.

BY JESSIE M. GOOD

IN "THE HOW OF IMPROVEMENT WORK."



FIG. 259I. SIGN NAME FOR
STREET.

HAVE you parks and open squares as breathing places for the people? Have you public playgrounds for your children? This one matter of public playgrounds in

all towns is of vital importance. When the influence upon the character and morals of children of healthful play, under the care of a watchful, high-principled man or woman, is fully understood, no money will be spared to provide such playgrounds, and a new profession, that of play professor, will be among the honorable and well-paid callings.

The possibilities of such playgrounds are almost unlimited. What mother would fear to send her boys to the public playground if she knew that awaiting them was a man who could teach or oversee them in their games and athletic sports, noting and repressing evil tendencies in speech and manner? On occasion such a man would take them on fishing and swimming trips and excursions through field and forest. The woman teacher has charge of the girls' plays and games, and teaches to both sexes—without seeming to teach—botany and nature study and kindness to birds and beasts, until even boys will see a bird, or cat, and a stone in juxtaposition without desiring to pick up the one and throw it at the other. This is not a fevered dream of mine. In a modified way these playgrounds are being tried in

various cities with the happiest results.

Are there any provisions for public baths in your town? Interest the young men of your town in this matter. Have your casinos, where the social life of your town may find expression? Have you a public library? If not, and your town is too small to support one, there are ways of obtaining traveling library cases. If your state library has no provision for distributing to the people the books your taxes so expensively house, petition your legislature until these books reach the people who need and want them.

The disfigurement of streets and landscapes by bill boards and advertisements is a nuisance that is attracting the attention of many of the best men, both at home and abroad.

What practical teaching are the public schools of your state giving the children regarding its agricultural resources? What, may I ask, becomes of the students and graduates of our expensive agricultural colleges? I never met one of them. Let us have the students of these colleges most thoroughly and broadly taught in the sciences of agriculture, forestry, botany, arboriculture, bee keeping, pisciculture, the culture of silk worms, and all else pertaining to an intelligent knowledge of such things; and then in our public schools let these young men teach the sciences they have learned. The electric railways which are fast webbing our country roads are making the centralization of country schools not only possible but so much more economical than the old

system, that the adoption of this system is only a question of time. The school commissioners of the county in which I live have been asked to build two of these central schools.

The school garden should be a part of the curriculum of these schools, both in the city and country, as it is in Germany, Russia,



FIG. 2592. CYCLE PATH.

France, Sweden, Saxony, and a few other European countries. Children so taught will have a greater respect for country living, and when a boy understands that it requires quite as much ability to make a farm pay as it does to make a store profitable, and that the independence and prosperity of a nation so largely depend upon its agricultural supremacy, then and not until then may we hope to have a long line of cultured country gentlemen, the class that has made England such a delightful land in which to dwell.

* * * * *

If there is one family in your neighborhood that is particularly obnoxious by reason of its untidy premises, by all means invite all its members and treat them with all the courtesy and tact you possess. You may find to your amazement that this family will take a heartier interest and do more work than many whom you rightfully expected would aid you. If you are successful in winning such people to your side you have

accomplished at the start one of the objects of improvement association work. It is a singular fact, but one often proven in our work, that a tactful woman who will show a little human interest in such families, and will share flower seeds and cuttings of plants with them, will do more to develop in them a spirit of right living than many generations of slum workers who proffer an impertinent patronage. There is an instinct in the human heart that resents the feeling that any one is better than we. This is a divine instinct, to be encouraged rather than repressed; for when self-respect is dead beyond repair, hope is dead.

I dwell particularly upon the importance of winning the members of such families to your side, because without their co-operation your work will fall short of its full usefulness. Their premises will be a continual eyesore and they can do much to hamper you. Their children may destroy your shrubs and flowers and trample paths across your lawns. I have learned to know that envy more than maliciousness it at the bottom of nearly all this cutting of shade trees and pulling up of flowers. If their own innate love of beauty is gratified and their civic pride aroused, vandalism of this sort will be almost unknown. If you cannot get the parents to come, get the children, one after the other. If they will not come to you, go to them and give them flower seeds and show them how to care for them. You will win them in time.

* * * * *

Be exceedingly cautious in the selection of your officers for the first year. It will depend upon them whether the association fulfills the purposes for which it was organized, or adds another to the long list of societies that simply meet to pass resolutions condemning public officials for remissness, for which you are quite as responsible as they. Do not choose those wily old taxpayers who cheerfully join every public organization in



FIG. 2593. CHURCH OF ASCENSION, BUFFALO.

town in order to control it and keep their taxes down, and after killing all efforts at reform proceed with the usual routine of having the tax levy adjusted to suit themselves. Nor should you choose women who have run all church and social organizations until there is a feeling of rebellion against their further rule. Rather choose the most successful, go-ahead young business men and popular progressive women for your

officers—people who make successes of their undertakings. Above all, do not in your public meetings abuse your city officials. Rather work in harmony with them. You will find it the wiser plan. If interest enough has been aroused to call a meeting in some public building there will be plenty of people present who will be able to conduct the meeting and its election in an orderly manner.

NOVA SCOTIA FRUIT GROWERS.

WE have received from Mr. J. W. Bigelow, president of the Nova Scotia Fruit Growers' Association, a copy of his annual address, which is printed for distribution. In it he reviews the fruit not planting ornamental trees as soon as the province, and the history of the association, which dates back to March, 1863, when

a few public spirited fruit growers met at Halifax and had an organization effected; also points with pride to the free school of horticulture at Wolfville, established in 1894, and supported by voluntary contribution, in addition to a maximum grant from the legislature of \$2,000 per annum.



FIG. 2594

RAILWAY GARDENING

IN a recent issue we gave prominence to the pioneer work in railway gardening which has been done on the Boston and Albany railway, and expressed the hope that the great railways of our Dominion would catch the enthusiasm and make their station grounds attractive to the traveler, instead of an offence to the eyes of people of cultivated taste, as many of them now are.

A most praiseworthy movement in this direction is evident in many sections, and we hope soon to see it general over this whole continent. We notice, for example, that the Illinois Central is to establish a park at Normal to be well furnished with trees and plants; that the Chicago, Milwaukee and St. Paul is parking its station grounds at Wausau, under the direction of a landscape gardener; and that the Grand Trunk will surround its new station at Lansing, Michigan, with a park, plans for which have been prepared, the work to include grading, planting of trees and shrubbery, laying out walks, etc.

Recently the Boston and Maine offered cash prizes to their station agents for the best kept gardens, providing them also with a stated sum of money each for the carrying

out of the work, so that all might be on an even basis.* We are able to show views of the station grounds at Arlington, taken from the *American Garden*. For these grounds Mr. F. C. Morrow, the agent at Arlington, won the second prize in the system. He writes as follows :

"Figure 2594 shows two plots of lawn nearly square, the smaller one situated north of station and between station and postoffice building, in which you notice one single round bed. This bed has for its centre French Cannas, bordered first by red Alternanthera, next by yellow Coleus, and next, near grass, is a border of red Alternanthera.

"The larger plot, located south of station and between railroad tracks and postoffice building, has a triangular border covering two sides of the lawn. This border is composed of silver spot Salvia, bordered first by yellow Coleus, and next, near the grass, with red Alternanthera. In the corners of this border are round beds of brown Castor Beans and Caladiums. You notice three beds in the centre of the lawn. The centre round bed has for its centre a Sago palm. At the base of the palm is a five-pointed star of yellow Alternanthera, between the points



FIG. 2595.

of the star is red *Alternanthera*, next a scroll-like circle of *Santolina*, next oblong sides of yellow *Alternanthera*, and an outside circle of red *Alternanthera*.

"The two rosette-shaped beds each side of the centre bed have for their centre *Cordyline amabilis*. The dark lines are red *Alternanthera*, the white centres are variegated *Stevia*, border near grass yellow *Alternanthera*. In the right-hand corner of lawn you see a bed in shape of fleur-de-lis. This is made up of red and yellow *Alternanthera* and bordered with *Echeveria*. On a mound, raised so as to give passengers on trains a good view, you note the station name. This is of brilliant red *Alternanthera*, which contrasts nicely with the green grass, which is kept nicely trimmed. The individual you see in the picture is your humble servant, myself.

"The other figure shows a plot of ground

triangular in shape, located a little north and back of the station beside driveway. This is bordered by brown *Cannas* faced with a border of *Zinnias*. In the three corners, only one of which shows in this picture, are triangular-shaped beds with scroll fronts. These have for centres French *Cannas*, bordered with *Celosia* or *Cockscomb*, next red *Alternanthera*, and the outside edge yellow *Coleus*. Between the two right-hand corners there is a bow-knot bed. The centre is a large *Castor Bean*, around the base of *Bean* are *Caladiums*, in the two bow ends are *Asters*, outside border *Sweet Alyssum*; along the side of plot you notice a scroll bed of *Star Petunias*, and in the centre of plot a star-shaped bed of yellow *Alternanthera*, with centre of brown *Castor Bean*.

"I have had seven gardens in all and have won prizes amounting to \$250."

THE *PEONIA* is a highly decorative plant and no garden is complete without a collection, for it can be had in nearly all the colors of the rainbow, and in some of the colors are so prismatic that they cast different shades as you move along and gaze upon

them. The new types of single varieties are attracting marked attention and admiration, with their monstrous flowers from twelve to fifteen inches in diameter, with the exquisite coloring and massive center of golden yellow antlers.—*American Florist*.

MAKING A CITY PARK

AT a meeting of the American Park Association, held in Boston last autumn, we had the pleasure of hearing an excellent address by G. A. Parker, of Hartford, Conn., on "Park Construction." Among many other good suggestions he says:

"It is many times supposed that expert gardeners make desirable park men. Skilled gardening is desirable in park work, but the skilled gardener is seldom the man to manage the park as a whole, for to acquire his skill he must love plants as individuals, while park work is plants used in mass or the relation of a single plant to the composition of the picture as a whole, and in which it is only a part. It is not so much the question as to what plant is used as to where the plant is located. The gardener loves the tree for its own sake. The park man loves the tree on account of its position, and it is found that the skilled gardener, like the skilled engineer, wants to bring that which he loves best to the foreground for admiration. It may be said that the park man who loves his park picture as a whole is only doing that which he condemns in others; that is, he wants to bring that which he loves best before the notice of the public, and this is true, but in defense he can say it is the composition as a whole that gives the mental rest, the moral strength and that development of the love of the beautiful which is the peculiar mission of the park. A great deal of thought must be given to detail, yet detail should never be so distinct as to attract attention separate from the composition to which it is a part.

"The next point I want to call your attention to is that a park is as much a construction as a city hall or a bridge. The idea that a park is a piece of ground outdoors which can be worked much as a far-

mer works his land should be exploded, and cities should understand that when they undertake to build a park they have undertaken a work of a similar character, of as great importance, fully as difficult and intricate as building a magnificent city hall. The city officers can be housed in a barn which might be called a city hall, but it doesn't help the credit or give character to the city. So any old piece of ground can be called a park, but only to the city's disgrace. Any piece of ground can be made into a park, and I care not what its condition is, yet until it is so made, it is no more a park than a pile of lumber and brick is a palace.

"If a park was a construction which reared itself into the air as a building does, or suspend itself across space like a bridge, it would be at once recognized as such, and the necessity of science and art and money and skill in its building would be acknowledged. It is no less a construction than the bridge and the building, even if it lies on the earth, and yet we are so used to seeing the ground and trees growing spontaneously and naturally from the land, and the farmer and gardener, by plowing and planting, producing their crops, that it is hard to realize that the park differs from all this, especially hard as groves of large trees which are not disturbed are always desired and selected whenever they can be obtained, but, nevertheless, it is true that parks, in the science of art of their designing and mission, in skill and methods of construction and care, and in every other way except in appearance, location and form, are more nearly related to architecture, painting and sculpture than they are to farming, gardening or forestry.

"Another habit of the people which blocks the way to realizing the need of park construction and care is the consideration

usually given to grounds around the homes of ordinarily well-to-do persons in what is often called the residential sections of the city. Usually little attention is paid to the ground until the house is nearly completed, then the grader is called in, who recommends a 'nice growing grade from the house to the sidewalk.' The nurseryman suggests the planting of angles or borders, a walk is added, many times great efforts are made to have it curved when a straight one would be a hundred times better; trees are planted on the street line and one or two on the lawn, and the grounds are completed, with a tendency toward ornateness instead of that greater charm, simplicity. The owner usually has spent more than he expected in the house and desires to economize on the grounds. A hundred dollars or less is the sum often mentioned as the limit. All this means a low grade of work, want of thoroughness in the doing, and lack of satis-

faction in results. It sets a low standard for the ideal. Now, if the builders of homes would recognize from the beginning that the grounds must cost for thorough work from 1-10 to $\frac{1}{4}$ what the house itself costs, and that they will cost as much to furnish as the average cost of furnishing a room inside, then the owner would find in his outdoor room of his home the satisfaction and contentment which ought to come from it. He would always have a library of nature's writings at hand where a new and beautiful book would open for his pleasure every day. He would have an outdoor art gallery filled with pictures of the most beautiful colorings, with statues of a most exquisite form, and besides that, and more in line with the purpose of this paper, his knowledge and appreciation of the best at his home would lead him to expect and demand the best for the parks of his city."

A FARMER'S FLOWER GARDEN.

THE plot chosen is one upon which snow lies continuously and deeply all the winter, thaws being rare and short in this region. In consequence the ground is kept free from frost, and as soon as the snow melts the Snowdrops and Crocus appear, together with the annual seedlings in great profusion, one after the other, as the temperature of the soil rises. Skill in the recognition of these seedlings by their seed-leaves is an essential element in the carrying out of the plan of this garden. Millions of them are scraped out by the cross-scorings of a narrow hoe, yet enough of all are preserved to entirely cover the ground at maturity. Thinning is systematically practiced with a view not only to uniform growth, but also to succession, the earlier blooming sorts being withdrawn to give place and space to later ones, and these to still later ones. A good deal of ingenuity

is required, as well as judgment and precision, to secure successive clouds of bloom, changing in one week from one color to another, over sections and strips of ground. It is like the playing of a game.

An inexperienced person would be surprised at the vast quantity of cut flowers yielded by this inexpensive garden. Churches and private houses are decorated with its products and the guests of several large summer hotels are supplied with bouquets most lavishly. Though the garden was started without a thought of profit, as much money has been realized from it as could be gained by any other crop. But the chief benefit arising to the owner is in the mental and moral stimulus it affords, and the change from mere business farming to something in the nature of a fine art, however humble in reality it may seem to others.

—*Vick's Magazine.*



FLORAL NOTES FOR JUNE

BY

WM. HUNT,

O. A. C., GUELPH.

WINDOW PLANTS.—Many of the foliage and flowering plants that have decorated the window during the past winter and spring should now be enjoying a period of partial or complete rest. This resting period is very necessary to many varieties of plants grown in the window, and is a feature of plant culture that is oftentimes overlooked or decidedly misunderstood by plant growers. There are few plants that do not require partial or complete rest at some season of the year, if good results are to be attained in their culture, and as outside window boxes are now the chief factor at this season for window decoration purposes, the summer time will be found to be a good time to give many of the winter occupants of the window a rest, or at least a change to quarters more suitable for them during the hot summer months. Palms, India rubber plants, Cordylines or Dracenas, Azaleas, Aspidistra, Fuchsias, Pelargoniums, Lobster and many other kinds of Cactus could be stood outside

now under the shade of a fence or building, so that the plants get a few hours sun morning and evening and are shaded from the hot noon-day sun. Stand the plants on coal ashes or coarse gravel an inch or two deep. Coal ashes is the best material as worms dislike it. All of these plants, except perhaps varieties of the three last named, should have a good supply of water at the roots and sprinkled over the foliage occasionally. By keeping them fairly moist (not soddened) they will make good growth during the summer. The Fuchsias, Pelargoniums and Cactus should be watered more sparingly, but should not be allowed to become dust dry.

Many of the winter Begonias can be treated as recommended for the last named varieties, such as *Begonia manicata aurea* and *B. Paul Bruant*, being varieties that can be treated in this way, but they must not get too much water at the roots either from rain or from watering them.

Pots of Calla lilies can be laid on their side

in the shade and given no water until they are started into growth again in August. Pots of Freesia bulbs should be kept quite dry and the pots stood away in a dry shed until August or September.

WINTER FLOWERING GERANIUMS.—Now is a good time to start preparing a few young plants of geraniums for winter flowering. Secure a few young, healthy, bushy growing plants of these, such as florists usually sell for bedding out at this time of year. Pot the plants into good rich soil in six or seven inch pots, according to the size of the plant. Plunge the pot in the ground up to the rim in an open place in the garden. Water the plant thoroughly when it requires water, two or three times a week perhaps, or every day in hot weather. Pinch off all the flower stems as soon as they appear, before the buds have time to open, and pinch out just the tips of the young shoots as soon as they attain the length of four or five inches. Possibly the tips of the shoots will require pinching out when they are first potted. The pinching out of just the wee small leaves at the tip of the shoot merely checks its growth and causes it to throw out more shoots down nearer the roots, thus making a nice bushy, stocky plant. This pinching will require to be done about once in every three weeks until the middle of August, when the plants should be allowed to grow freely, but the blooms can be kept pinched off until early in September, a week or so before the plants are taken into the window. Pinching off the blooms lessens

the strain on the vitality of the plant and throws all the strength of the root into the growth, whilst the pinching keeps it bushy and symmetrical.

Cuttings of geraniums started now and treated as I have described, will make nice plants for the window before winter. Smaller sized pots will, however, have to be used than for the larger plants.

A little fertilizer of some kind, not too strong, given the plants during August, will help them considerably, when the soil in the pots has become partially exhausted. Once or twice a week will be often enough to apply the fertilizer. Weak liquid manure made from chicken or cow manure is very beneficial to all growing plants when growing out of doors, but is not suitable for application indoors, for sanitary reasons. Specially prepared commercial fertilizers or plant foods are best to use for window plants when the plants are indoors.

La Favorite (white), Jean Viaud (pink), Le Pilote (scarlet), Bruant (scarlet), C. Morel (scarlet), Mme. Charlotte (rosy salmon), are some of the best winter-flowering doubles, whilst Gettysburgh, Mrs. E. G. Hill, Rev. H. Harris, Countess of Roseberry, Fanny Thorpe and Madonna will be found to be a good collection of single flowering varieties for winter.

Mme. Saleroi (silver leaf), Marshal McMahon (bronze leaf), Mrs. Parker (silver leaf), and Corrine (double flowering with golden foliage), will also make useful additions to window plants in winter.

FERNS IN A TREE.—Ferns grow usually in deep, cool woods, and not in trees, as does a dainty little fern called the scaly polypody, which is found in beds high on the sides of branches of trees. They grow in a thick mat, completely hiding the bark, plant en-

twining plant. The roots penetrate the heavy outer bark of the tree, rot it and feed upon it, while the mass catches falling leaves and twigs and holds them until they have added to the bit of soil to contend with many dry summers.—*Country Life in America.*



FIG. 2596. GIANT FLOWERED PETUNIAS.

GIANT FLOWERED PETUNIAS

BY

WM. HUNT,

O. A. C., GUELPH.

THIS magnificent type of these ever-popular plants is certainly a great advance on the ordinary single type of petunia commonly seen in flower beds or borders. The immense size, as well as the beautiful form and texture of their fringed flowers, added to their gorgeously rich and varied pencilling and marking, at once attracts the eye of the flower lover. It would be impossible to even attempt to describe the many beautiful colors and tints to be found in a good strain of these petunias, ranging as they do in color from pure white to a deep claret purple, blotched, striped, pencilled and tinted with shades of almost every color found in flowers, so that to really get a correct idea of their beauty one has to see them growing

naturally in the flower bed or border, or arranged in a shallow dish, as seen in the accompanying cut (Fig. 2593). This giant strain of petunia is not as free growing as the common type, neither is it as floriferous in point of the number of its flowers, but the beauty of the individual blossom more than compensates for these defects. It is to be hoped that those who are interested in the development of new types of this strain of petunia will be able to add the robust, free growing and floriferous habit of the commoner type to this giant flowering favorite of the flower garden. A shallow vase or dish of these beautiful flowers will alone make a splendid centre floral piece for a drawing room or dining-room table.

SOME FLORAL LEGENDS

BY

EDWARD TYRRELL,

TORONTO.

I N continuing my notes on the history and lore of plants, your readers will please bear in mind that I have collected these from various writers, the most prominent among them being Shakspeare, Phillips, Tyas, Kerner, Hibberd, Paul, Hole and others. Some are superstitions of old times, and there are redeeming traits in these old mythologies, "their floral ornaments and allegorical combinations of fruits and flowers are symbols of a divine idea." My desire is that young people (and older ones too if they will) should encourage a habit of learning more about trees, plants and flowers, because they become far more interesting when we have some knowledge of the region from which they came and the history connected with them.

Although for the present I am giving the histories of flowers, I do not wish your friends to think their gardening work should be confined to the culture of flowers alone, though Mrs. Hemans thinks that the fine passion for flowers is the only one, which long sickness with its chilling influences leaves untouched. In one of her poems she writes:

"Oh lovely flowers, the Earth's rich diadem,
Emblems are ye of Heaven and heavenly joy,
And starry brilliance in a world of gloom;
Peace, innocence and guileless infancy
Claim sisterhood with you and holy is the tie."

We should also be interested in all the branches of horticulture, and endeavor to realize by actual work the joys and pleasures connected with gardening, in the satisfaction that the meanest tasks are elevated even to dignity by the fact of their necessity, and to feel a pride that there is not one manipu-

lation but that they can perform although their means may enable them to enjoy all the refinements of life. Hibberd says "that of all worldly occupations, gardening is the noblest, the most useful, and the one which promises the richest mental and material rewards."

This topic is interesting, but I shall leave it and continue my quotations, which this time are on the pansy and mignonette.

PANSY (*Viola Tricolor*).—The name pansy is derived from the French word "pensee," a thought. In floral language it means "think of me." This pretty flower, the favorite alike of poet, florist and rustic, is a species of the violet, not the little flower that perfumes the air, but a species entirely distinct both in its habit of growth, and in the form and color of its flowers. One writer says it was reserved for a young lady, aided by an intelligent gardener, to show the world the extraordinary variations to which the flower is susceptible. About 1810 or 1812 Lady Mary Bennett had a small garden planted entirely of hearts-ease in the garden of her father, the Earl of Tankerville, at Walton-on-Thames. This young lady was desirous of having as many varieties as possible, and at her desire the gardener, Mr. Richardson, raised as many kinds as he could from seed. From this small beginning the present passion for these flowers took its rise. Mr. Richardson showed them to Mr. Lee, of Hamersmith, who instantly saw the opportunities of making this a florist's flower.

Another writer says that about this time a Mr. Thompson, of Iver, England, gardener to Lord Gambier, commenced the cultivation

of this plant by growing *Viola Tricolor* and *Viola Lutea* together, and reserving seed from the larger and handsomer flowers, and by long culture and hybridizing with other species brought these inconspicuous field weeds and developed them into our innumerable garden varieties. The first great change was the conversion of the dark lines in the centre of the flower into a dark eye or centre, which at that period had never been seen, but is now considered one of the chief requisites of a first-rate flower.

This flower is rich in gentle names which appeal to our hearts. Besides *Hearts-ease* and *Pansy*, by which it is generally described, it has been called *Herb Trinity*, *Love in Idleness*, *Kiss Behind the Garden Gate*, *Three Faces Under a Hood*, *Pink of my John*, and many other names. The French called it "*Herb de la Pensee*," and Louis the XV. of France is said to have selected it as an armorial bearing for his physician, *Quesny*, who was remarkable for his thoughtfulness, and whom the king called

his "thinker." The Italians call it "*Little Flame*," "*Winged Violet*," "*Butterfly Violet*," also "*Mother and Daughter-in-law*," and this strange name accords with that given by the Germans who call it "*Step-mother*." I am not certain, but I think one kind has entirely disappeared from cultivation. They were known as "*Painted Ladies*," the under side of the petals being white and the upper surface red or purple, so laid on as if to appear really painted.

MIGNONETTE (*Reseda Odorata*).—This plant is a native of Africa, and was introduced into England by Lord Bateman, who brought it from the Royal Garden of Paris in 1752. *Mignonette* is a French word meaning "*Little Darling*," and is too appropriate for this sweet little flower to be exchanged for any other. A branch of the *Reseda* was added to the armorial bearings of an ancient Saxon family (Count of *Waltshiem*), with the motto "*Your qualities surpass your charms*." The romantic story connected with it is too long for quotation.

ROSE INSECTS.

NO plant has more foes than the rose; rose chafers, beetles, worms and aphides attack it, and if not met with prompt measures they soon ruin the prospect of a rich rose harvest. It is always wise to anticipate their coming, and early in the season, before any are to be seen, dust the foliage, both above and below, with powdered hellebore, using a bellows or powder gun for the purpose, and applying it while foliage is wet with dew. The early application is, in every sense, "the ounce of prevention worth a pound of cure." Tobacco tea or tobacco

dust will free the bushes from green aphids if applied thoroughly and in time. Cold water turned on with force, by means of a hose, thoroughly applied from all sides, sweeps many of them from the bushes. The rose slug, a slimy, worm-like pest, sometimes infests the bushes, eating the green substance from the foliage, and if not exterminated soon robs the bushes of their beauty and the roses of their support. This pest may be destroyed by tobacco dust, or, in fact, any of the insecticides, or anything obnoxious in dust form.—*New York Tribune*.

THE HOLLYHOCK.

BY

HERMAN SIMMERS,

SEEDSMAN, TORONTO, ONT.

OF late years, unfortunately, the hollyhock has not been cultivated in our gardens as much as it should be, for it is one of the handsomest plants a person could wish to have for a background effect, and towering as it does with majestic effect over its small subjects, the annuals. The hollyhock is almost as easily raised from seed as the pansy, the pink and the carnation, etc., is; but the difficulty lies chiefly in carefully wintering them, which probably has been the reason for their partial extinction of late years. Hollyhock seed may be started in a cold frame any time during the month of June, and as soon as the plants have become sufficiently established to allow of them being handled, transplanted to any ordinary bed in rather a shady locality. Do not defer sowing the seed later than this month, as it is almost impossible for them to get sufficiently established to withstand the winter. My experience with them has been that if sown later than June they will invariably be frozen through the winter, and even sowing in June and subsequent transplanting will sometimes discourage the amateur; because the proper amount of covering required is somewhat puzzling. Too much is sometimes as bad as too little, for if we have a mild winter the plants, having been grown pretty strong, will probably rot with a heavy covering, and the same sometimes happens with the lighter covering. Therefore I would suggest a medium amount of covering, and to plant in a rather secluded spot. If the plants have properly wintered over, plant to their proper situation about the middle of April, as during the cooler weather of April they have a better chance to root, when they will be fully pre-



FIG. 2597. HOLLYHOCK.

pared for the warmer weather to follow. I would suggest not to leave them where they were planted the previous summer, as frequent transplanting will strengthen their blooming properties. This, the June issue of the Horticulturist, will give amateurs of the Horticulturist, will give amateurs

ing seed for their plants for next year, and I only hope many will avail themselves of the opportunity of so doing in order to have one of the finest species of plants in their gardens, not on account of its value as suitable for cut flowers, but as a decoration for the garden.

ABOUT ROSES

MOST BEAUTIFUL IN THE MONTH OF JUNE—THE JACQUEMINOTS.

IT is the time of the roses! In every garden, ground, and on every lawn they give their beauty and their fragrance to every passer-by. The first surging wave of the opening summer breaks over our green hills bearing forward the high tide of the blossoming time of the queen of flowers. Roses are the perfect expression of the year's perfect month. It would seem that nature put forth all her subtle chemic force, all her arts and resources, all her power, to complete this particular floral expression of perfect beauty. There is but one real season for the roses, and that is brief. It comes in the fresh and peerless days of June, the perfected month—ere yet the scorching heats of the full summer are upon us, or the burning skies of brass have come. The roses bloom when earth and sky are at their loveliest and their best; and of all the charming time and scene, they are the most beautiful. Our northern slopes and meadows are at their freshest, fullest vigor, now—clothing all the world in robes in the deepest verdure. The brooks are full, the singing birds of the morning have not ceased—the thrushes and the orioles; the rollicking music of the bobolink is heard all day above the buttercups and daisies of the field. June's skies, themselves, with their

“Far-folded mists and gleaming halls of morn,”—and the mists, to say nothing of the rains, are unusually abundant, this time—when they do, at times, roll apart, disclose depths of luminous smiling blue, far more charming than the unrelieved glare of the later summer. The season of the roses coincides with this time of general beauty in the landscape. Brief as it is, how exquisitely beautiful they make it! A rose garden is the most attractive part of the scene, wherever one finds it. Take a row, for example, of full-blown-Jacqueminots!—what other rose, of all the queenly throng, can quite equal that royal flower—so deep, so rich, in its full-toned velvety scarlet. Even its half opened buds are more charming than those of almost any other rose. The “Jack,” as it is now tersely and conveniently called, is indeed a splendid variety. One element of its beauty is the peculiar deep shading of its royal red, like some rich velvet. It is as fragrant, too, as it is beautiful. One can only regret that the beauty of the individual flowers is so shortlived. One day only is permitted to its full perfection of glowing color. Then it begins to dull down into a less and less attractive purple, and it is best for the sake of the bush, to remove it so that the crowding succession of freshly opening buds can have the most perfect succession.

Their time, at best, is short. Nature ordains that the highest transports of pleasure shall be brief, and the law holds good of her varied and fleeting forms of beauty.

Other roses of many kinds are now opening into full bloom—several sorts being, each of them, almost as beautiful as the Jacqueminots. The so-called “hardy perpetuals” have nearly displaced the so-called “garden” roses—those old style varieties which bloom only once in the year. The so-called “perpetuals” are in most cases mis-called by that name; for the greater number, in our gardens generally, are the kind called (more properly) by the French gardeners *remontants*, flowers which bloom again and again, but have distinct and separate periods of bloom, through the season—none of these periods producing such splendid effects as this first, fullest, best period of June; while the true “perpetuals” bloom on, in a modified way, regardless of times and

periods. Of the *remontants* there are several superb varieties—one of the finest being the rich, clear, deep pink “Jules Margottin,” which hold their beauty longer than the “Jacks,” and their plump buds, opening so very slowly, are also very attractive. Almost any one of the dozen favorite kinds will be a valuable addition to any garden that lacks roses, provided it is a hardy kind. Nearly or quite every variety does better for some protection, in this climate. As to the endless army of insect enemies, which ruin roses and their leaves, it will be found almost impossible to exterminate them by any of the usual remedies, hellebore, arsenic, or tobacco; the best thing is to give the rose bush an abundant supply of fertilizer, over winter as well as in spring, and the resulting vigorous growth will do more to prevent these pests than all the vaunted remedies will do to cure them when once established. —*Exchange*.

ROSES WINTERKILLING.

I HAVE come to the conclusion that ex-culture in a country like this, where perience counts for very little in rose no two seasons come alike. I have not been in the habit of covering my roses until about the beginning of December, believing that it was better not to cover them too early. Last year was a wet and sloppy season throughout, and the new growth did not appear to ripen. During the first part of December came that very cold snap, a thing quite unlooked-for, and being from home my roses were left exposed to it. I covered them heavily with pea straw immediately after my return, but the damage had been done. It might have been better not to have covered them at all, for the close packing seemed to complete their destruction. When I took the covering off this spring, about the 10th

of April, all the new growth of last year was blackened to the ground, and something over two hundred bushes were totally destroyed. Many of them are shooting p again from the roots, but I will have little bloom this year.

I am not so sure that I did not cover too heavily, for soon as the straw was on there came a heavy snow fall which must, added to the straw, have had a smothering effect. First the unripened condition of the wood; secondly, the hard freezing, and thirdly, the close covering of straw and snow—to this combination of circumstances I owe my loss of 200 bushes and nearly all my bloom in roses for this season. Will there be a lesson in it for the future?

Mitchell, May 18.

T. H. RACE.

EXPERIENCE WITH CANNAS

G. A. WOOLSON.

THE advent of Canna Austria marked an important era in the culture of these semi-tropical plants, which are now considered so essential to every lawn. The foretelling of its glory impressed me favorably, hence a fine specimen was duly installed in a prominent bed in my garden. Somewhere I had read that the variety "did best in poor soil." This I did not in the least believe, for I had had long and intimate acquaintance with cannas of many kinds, and had fully demonstrated their ability of appropriating for personal glorification the desirable elements in the richest and strongest soil which the ingenuity of man could concoct. Consequently I expected to break all previous records of the new acquisition.

Cow manure was liberally spread over the bed and the soil forked over and thrown out. Just what the excavation was filled with I positively refuse to tell. However, the reservoir was to serve as bank account for the plant to draw from later on. The soil was then thrown back and the bed got in shape. All went well for a while. Fine fresh leaves unrolled rapidly, but after a little they blanched strangely, turned brown and withered.

"Drench it with plain straight water," was the advice given, but of no avail. The roots had struck the reservoir, and deluging the soil only choked them with a bigger drink. My "center piece" was facetiously commented on. The roots were lifted in the fall, and as they were sound, but not vigorous, were ensconced in a 10-inch pot, given indifferent soil and placed in a sunny bay window. Liquid fertilizers were dutifully passed on to more appreciative cannas,

nevertheless nothing but leaves resulted; these were good to look at, and Madam Crozy and Gen de Miribel made up all deficiency of bloom, showing what a canna should and could do indoors in midwinter.

Last spring I cut down the stalks and divided the root growth into thirds; two of these were repotted in ordinary soil and a moderate allowance of liquid fertilizer given occasionally, but out of door pot culture was no more fruitful than that indoors, in fact the foliage was less luxuriant, owing to the more rapid evaporation of moisture in the open air. The third section was located in the poorest vein of soil my garden could furnish; some water was of course given, but assuredly the subject was not "fussed with." As a result thereof there stands in that usually barren spot a robust plant stretching its glorious spikes of clear yellow to a height of six feet. Individual flowers measure fully six inches across, and the larger petals are fully two inches wide. Obviously Canna Austria is a law unto itself, a fact demonstrated at the expense of a little personal conceit.

A dwarf canna (Nellie Bowden) growing close by, looked quite like a small edition of its "lily-flowered" superior. It is the only canna which might properly be called dainty looking, and it is that in leaf and flower, as both are small, trim and slender. The color is a little deeper yellow and lacks the clear transparency of petal; the two smallest petals are stained with red much deeper than the faint dots of Austria. This is also a free bloomer out of doors, but has never done anything indoors. The extreme height thus far attained is 38 inches.—*Amer. Agriculturist*.

THE ESSENTIALS OF A GOOD LAWN.

THIS is the season when we are often asked how to establish a good lawn and insure its permanence. Downing names three essential requisites: (1) Deep soil; (2) proper kinds of grass, and (3) frequent mowing. For this climate I would add a fourth—that is, plenty of water. The air of an average American summer is not so well adapted to the production of a fine lawn as is the humid atmosphere of Great Britain. There not so much attention need be given to the richness of the soil, as the moisture takes its place in a measure. But in this country the soil should be deep and rich, with a subsoil capable of retaining moisture, but not in excess. If the subsoil is hard and tenacious it should be well under-drained and trenched, or subsoiled to a depth of sixteen or eighteen inches, so as to create a reservoir for holding moisture which may be drawn upon by the plants as needed during dry times. This matter of subsoiling does not receive the attention it deserves in our climate. Many persons seem to think that if the surface soil is in good condition nothing further is needed. Such persons should bear in mind that it is a deep soil only which will furnish moisture for grass roots through continued drought, so that the lawn will remain green during the entire summer and autumn.

Again, too much attention cannot be given to the preparation of the soil before the seed is sown. It should be plowed and re-plowed, cultivated, harrowed and rolled until the whole is thoroughly pulverized and mixed to a depth of ten inches. This work should be done in the fall, and then the plot should be left to settle all winter before the seed is sown. The foundation will then be firm. This not only makes a compact bed which the tender grass roots need, but it will

insure the lawn against those little knolls and hollows which are so objectionable in appearance and do so much to obstruct the use of the mower.

Only two kinds of grass are really worthy of consideration for this climate. These are Kentucky Blue Grass (*Poa pratensis*), and Red Top (*Agrostis vulgaris*). There are a few others, such as Rhode Island Bent Grass, a finer kind of *Agrostis*, which may be sown, but it is more expensive and little superior to a good strain of Red Top. A little Sweet Vernal Grass, or White Clover, may be added, but neither is essential. The coarser grasses, such as Timothy, Orchard Grass of Meadow Fescue, should never be sown in a lawn. They are short-lived and too coarse and stiff to make a soft, velvety carpet. There are many lawn mixtures advertised and sold at high prices; some of them are good and will make excellent lawns; but, if analyzed, the best of them will be found to consist mainly of Blue Grass and Red Top, which may be bought in the market for from \$1.50 to \$2.50 a bushel.

To seed properly, from two to three bushels will be required to the acre, owing in some measure to the amount of chaff mixed with the seed. This should be sown as early in the spring as possible, so that the young plants may become well established before the hot dry weather of midsummer. The sowing of oats with the seed has been recommended as a protection to the young grass plants, but I have never yet found that a strong, gross-feeding plant like the oat would furnish protection to a delicate, slow-growing one. On the contrary, the so-called protector will rob the weaker plant of its nourishment. Red Top germinates much more quickly than Blue Grass, and will

furnish all the protection necessary, besides covering the surface with a green coat almost as quickly as oats will. After the Blue Grass gets its roots well established in deep rich soil it will need no further protection, but will assume entire control in a very short time.

The third essential is early and frequent mowing. If the grass is allowed to get too large before being cut, the stubble will be too stiff, and we lose that soft velvety character which is only produced by frequent mowing. It is time to begin as soon as the grass is tall enough for the mower to catch it. A few annual weeds which may make their appearance during the summer will do no harm, as they will be kept down by the mower and not allowed to ripen their seeds; but such perennials as the Docks, Dandelion, Plantains and their kind should be dug up as soon as they can be seen, and water must be in constant supply to feed the grass, keep

it green and growing. The deep-soil preparation will help to do this, but he is fortunate who can draw on some reservoir for occasional irrigation. Where water is always abundant less care need be given to fertilization, otherwise it will be well to top-dress the lawn early every spring with thirty or forty bushels of unleached ashes and three or four hundred pounds of bone-meal or superphosphate to the acre. This will keep the grass in thriving condition. Barn manure is too unsightly, and should not be used except in localities where snow covers the ground all winter, and then it should be raked off as early as possible in the spring. By following out the suggestions given here in providing the four essentials, we may have as fine lawns in this country as they do in England; lawns which will last a lifetime and be a continual source of pleasure to all who see them.—*Garden and Forest.*

PANSIES.

I HAVE had in the heat of summer, where the sun lay till late in the afternoon, pansies an inch and three-quarters across, from seed two years old from the florist, and a ten cent packet in the beginning. I use a mixture of cow manure, partly rotted forest leaves and wood ashes. Three quarts of ashes to a bushel of manure is enough, but two-thirds of the soil of the bed of the manure and leaves is not too much for pansies. It makes no difference whether the manure is fresh or rotted, that I can see, but it is best to have it buried with a couple of inches of rich soil over it in which to set the seedlings.

A mulch of grass or leaves round the plants will keep the ground from drying, but if it is not rainy they should be watered every night. I think it is best to plant the seeds in a large box filled with the mixture mentioned, and in the same proportion; as

the seedlings are rather slow in growth they can be cared for easier in this way when small.

Young plants beginning to bloom, covered with evergreen boughs during the winter, bloom best in spring and early summer for me. And seeds planted as early as possible in the spring do best for late summer and fall. Pinching out the heart of the plants when small will make them branch more freely.

During the summer the size of the flowers can be kept up by watering two or three times a week with water in which cow manure has been soaked till the color of strong coffee; you can hardly give them too much of it; if it gets on the leaves rinse them with clean water. Pick off the faded blossoms; if you want seed tie a rag round the largest, finest blossoms, and leave but one seed-pod on a plant till ripe.—*Vick's Magazine.*



The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

NOTICE.

Owing to the spring opening up so early, and to the great demand for premium plants this year, the nursery with which we made our arrangements for premium plants has run out of stock before all have been supplied. It was, therefore, deemed expedient by the executive committee to cancel all orders after May 15th rather than send out small or inferior plants to our subscribers. We now recommend that the delivery be suspended until the fall, and at that time bulbs or shrubs should be substituted. Further notice will be given in detail later in the season.

(Signed)

G. C. CREELMAN,
Secretary.

Question Drawer

HAIRY VETCH.

SIR,—Please give me your experience with the Hairy Vetch as a cover crop. How much should you sow per acre? Will it ripen its seed in Ontario?

Answered by Mr. C. A. Zavitz, O. A. C., Guelph.

We have grown the Hairy Vetch in our experimental grounds at Guelph for fully six years. It has been sown in the spring, in the summer, and in the autumn. The autumn sowing usually comes through the winter well, and gives slightly better results than the spring sowing. It is a leguminous crop, which seems to grow well when the weather is warm, as well as when it is cool. I consider it one of the best cover crops

which can be grown in the orchards of Southern Ontario. The quantity to be sown per acre depends somewhat upon the requirements of the crop. A light cover crop can be obtained from sowing one-half bushel of seed per acre. A much better and thicker matting can be formed by sowing one bushel per acre. For the production of fodder it is customary to sow one and one-half bushels per acre, which amount usually produces a large amount of fodder of excellent quality. It will ripen its seed in Ontario, but does not produce very large yields. The highest yield which we have obtained has been seven bushels of seed per acre.

TREE PROTECTORS.

SIR,—I want a little information through the columns of the Horticulturist. I notice two different advertisements for the tree protector advertised in the Canadian Horticulturist. One is the Expansive Tree Protector Co. of Ontario and the other is the Tree Preservation Co. Will you please tell me which is the best, or is any of them any good, or has any leading fruit grower given them a thorough test, and would I need to spray my fruit trees as well; will the Aphis or any other insect get above the protector? I would like to get particulars from some experienced man.

Bruce's Landing, B. C.

J. B. BRUCE.

Answered by Prof. Lochhead, O. A. C., Guelph.

In replying to Mr. Bruce's inquiry regarding the merits of the two tree protectors which are advertised in the Canadian Horticulturist, I shall deal with the questions in order. First, I cannot state which is the better protector of the two, for I have not had sufficient experience with them. Second, that neither of them are useless, and both possess some good features. Third, many fruit growers have given them a thorough test, and some of them recommend them, but many others prefer the burlap. Fourth, these tree protectors will not take the place of spraying. Fruit trees must be sprayed at certain intervals for the prevention of fungus diseases and insects of many

kinds, only some of which can be entrapped by the tree protectors. The protectors will not keep away fungi, and applications of Bordeaux are necessary for their control. With regard to the Expansive Tree Protectors, I may quote from an article which I prepared for the annual report of the Entomological Society for 1902. "Recently another device for entrapping codling worms has been put on the market. It is known as the Expansive Tree Protector. It consists essentially of an expansive metallic collar, coated on its underside with a sticky substance, and a cloth band saturated with a poisonous liquid placed between the collar and the trunk of the tree. Although not in a position personally to test the device this year, I had an opportunity of inspecting many of them in different orchards. In nearly every case they failed to give satisfaction, and in some instances were positively harmful. In the first place they are difficult to fit to the trunk of the tree; secondly, the sticky substance did not hold the caterpillars, and other forms of insect life, or prevent them from crawling over it; thirdly, the poisonous band did not kill the insects which crawled beneath the collar; and fourthly, the bark of the tree immediately beneath the band was frequently seriously injured. In my humble opinion, decided improvements in the construction of this device must be made before it becomes effective."

VEGETABLE GARDEN.

SIR,—I have been reading your journal (the Canadian Horticulturist) for two or three years and always enjoy it very much. I have noticed the "Question Drawer" and desire to ask a question or two. My father has given me a large plot of ground and I thought if I could make a vegetable garden I might make some pocket money. What vegetable would be the most remunerative; also, is there any market where I could sell sweet peas and field daisies? I hope you will be able to find time to reply soon and that this isn't too much of an imposition on your valuable time.

Orangeville.

FLORENCE ENDACOTT.

As to what are the most remunerative crops to grow can best be determined by experience of gardeners in your locality, as what does well and pays well in one locality is often a failure in another. If one has a good local market a large number of garden crops can be grown at a profit, but if the produce has to be shipped to a distant market it is better to make a specialty of a few of those crops which stand shipment well and are always in demand, such as asparagus, cauliflowers, celery, onions, potatoes, tomatoes, etc. We know of no market for sweet peas and daisies. These are usually grown in such abundance that only those who live in the large cities, who cannot find room to grow them for themselves, could be counted on as customers.

CLEMATIS FAILING.

SIR,—I have planted Jackmanii, Henryii, and other varieties of Clematis for three years in succession to shade a verandah having an easterly frontage, close to Lake Ontario. They are carefully planted, and do well until they commence to bloom, then something happens to them, the blooms droop: and the plant gradually dies. Out of the five Clematis planted last spring, only one survived the summer. I have found "cut worms" about the roots of some that have been destroyed, but could find none in this instance. Clematis on verandahs having a north and southerly exposure have always done well.

Prof. Hutt, of the O. A. C., Guelph, replies.

It is hardly likely that the difference in exposure is the sole cause of the difference in the growth of the clematis. It is possible that the excavation from the cellar may

have been left on the eastern side of the building and not on the other sides, where plants have done well. This often causes the failure of plants grown near the house. In the case of the plants last year, starting well but dying off suddenly, it would appear that something like cut worms must have been at work. In putting out new plants, where cut worms are troublesome, it is well to protect them by a band of stout brown paper inserted into the soil and encircling the stem for five or six inches upwards.

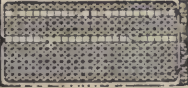
Open Letter

The Editor Canadian Horticulturist :

SIR,—When a horticultural society is flourishing I think it is a good thing to let others know it, so that those who are not making good headway may take courage. I am pleased to tell you that through the enthusiasm of two or three of our members our growth this year has been very good; our meetings also have had increased value by the recognition of our work. Mr. C. C. James (Deputy Minister of Agriculture) has helped us much with gentlemen from his department. In March Mr. Hodgett's gave us a valuable address on Insects, and on the 5th inst. Mr. W. Hunt, from the college at Guelph, instructed us fully and pleasantly on the Culture and Care of Roses. These addresses were much appreciated by our members and friends because they were useful. Mr. Hunt demonstrated his work on dormant and growing rose bushes, to show how to prune both root and branch. Vocal and instrumental music is kindly given, so that the evening is pleasantly spent. We have an exhibition of plants and flowers each month, points of excellence are made and recorded, and at the end of the year prizes are given. We are trying to do some good. Yours truly,

Toronto.

EDW. TYRRELL, President.

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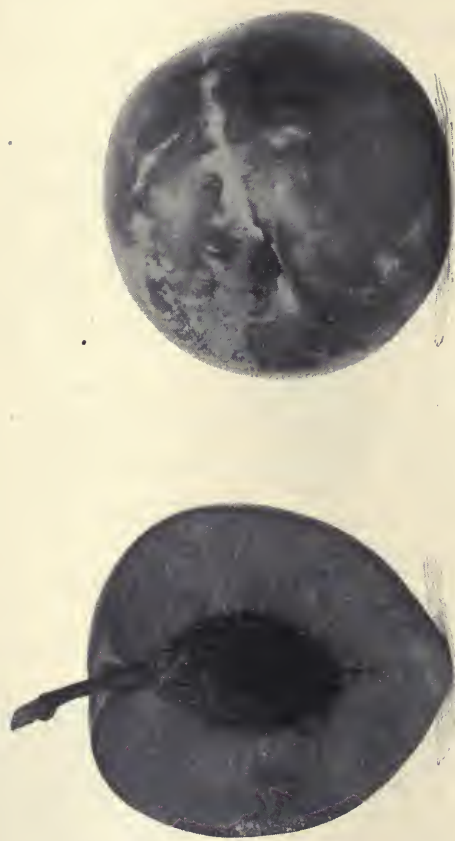


FIG. 2598. CHABOT.

THE CANADIAN HORTICULTURIST

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CHABOT

IT is only about twenty years since the Japan plums began to be propagated in America for commercial purposes, and it wonderful how quickly they have become distributed throughout the United States and Canada, while still almost unknown in Europe. Perhaps this is because the European varieties succeed so well there that the Japan varieties are not sought after in that country, while here the former class are subject to many drawbacks, such as black knot, plum rot, etc., from which the Japan varieties are apparently more or less exempt.

The Chabot first fruited at Maplehurst in 1902, and at once attracted our attention as being exceptionally beautiful in appearance and delicious for eating. It was imported from Japan by Mr. Chabot, of Berkeley, California, and afterward sold to Mr. Burbank, who introduced it to the trade in the year 1886. It has borne several names, as for example, Yellow Japan, Bailey, etc., but in justice to the importer, it is now generally known as the Chabot. A good many are puzzled over the pronunciation, so we may as well state that the accent is upon the last syllable, phonetically written it is "Shab-bot."

This plum has been tested at our Geor-

gian Bay station by Mr. John Mitchell, of Clarksburg, and described by him as follows :

"A very strong grower, of a large beautiful and stately top; bears the third year; fruit about the same size and shape as Red June, but not quite so conical; skin amber, and nearly covered with red spots and markings; very attractive; season late in September; very hardy."

At Maplehurst our record of its season is the first half of September, but perhaps it would be ten days later at Clarksburg. It did not bear the third year after planting with us, indeed it was about the fifth year before we had any samples. No doubt early bearing depends a good deal upon the soil; and our deep rich sandy loam encourages the production of too much wood and too little fruit. In respect to size also, it was larger with us than Red June, indeed, almost equal to Washington; but with us the crop was light, while with Mr. Mitchell probably it was heavy.

Everyone who has fruited it gives the Chabot credit for being the best Japan of its season, which is about two weeks later than Burbank. The flesh is yellow, and the flavor very pleasant, though inclined to cling to the stone.

Editorial Notes and Comments

HOW FRUIT BUDS ARE MADE.

THE common notion that fruit buds are structurally distinct from leaf buds is questioned by Mr. E. S. Goff (American Garden, 1901). He claims to have abundant evidence that leaf and flower buds are in a measure interchangeable; and that by proper pruning a flower bud may become a leaf bud, and that, by ringing, a leaf bud may become a flower bud.

Of course we all know the fact, without knowing the philosophy of it, that ringing, or wrinkling the bark, tends to the formation of fruit buds; and that dry weather is also conducive to the same, but why? Because such conditions are restrictions on the movement of the prepared food in the branches, and the surplus water in the sap is thrown up through the leaves, and the remainder becomes concentrated and rich in

prepared food. Whenever, then, the water supply is increased, the tendency is towards growth and to the formation of leaf buds; and a decrease in the water supply, for the reason given above, tends to make flower buds.

Another significant fact is that as soon as active wood and leaf growth ceases, the formation of fruit buds begins, and may continue until cold weather sets in. This would encourage the present system of our best fruit growers, who cease cultivation in July or August, and seed the ground to a cover crop, thus causing early maturity of wood before cold weather. If a tree were too much inclined to wood growth, and too little to fruit production, it is evident that the earlier in the summer that cultivation ceases and the cover crop is sown, the more hope of a crop of fruit the succeeding year.



FIG. 2599. EXPERIMENTAL PLUM ORCHARD AT JOHN MITCHELL'S, CLARKSBURG,
Showing Clean Cultivation, Ready for Cover Crop.

IDEAL TILLAGE.

A GREAT change has come over the ideals of the Ontario fruit grower during the last fifty years. Formerly fruit trees were planted in the corners of the snake fences because they were supposed to need no cultivation, and the apple orchard was seeded down to orchard grass, never to be broken until the trees had to be taken out on account of old age.

Now we find the orchard will repay the owner for the most careful and thorough tillage, unless the desired results can be attained in some other manner. The ideal tillage of an orchard begins as early in spring as the soil can be worked, before it has begun to lose its moisture, and continues during the growing season of the tree or plant, which ends in July or August.

As has been shown in these pages by Prof. Reynolds, the rainfall in most parts of Ontario is amply sufficient for all vegetation, if it can be kept in the soil and not lost by evaporation or by cropping before the time when plant growth should cease and the wood mature in preparation for winter. Constant shallow tillage, by spreading a dust mulch over the soil two or three inches in depth, will wonderfully retain this moisture in the soil beneath, where it can be used by the trees or plants.

MANURE AND MOISTURE.

THIS conservation of moisture becomes doubly important when we understand the relation it bears to plant nourishment. All plant food is taken up in solution, so that if moisture in the soil is lacking during the growing season to dissolve the mineral plant foods, the trees and plants will get little benefit, no matter how much fertility may be in the soil, or how much fertilizer may be applied. In this possibly we may find an explanation of the frequent disappointment in the use of commercial ferti-

lizers, which, in a dry soil, might remain sometime unused.

CONTROLLING THE MOISTURE.

ON the subject of controlling soil moisture the Farmers' Advocate makes the following pointed remarks:

Someone has said that the best crop to grow in an orchard or fruit plantation is cultivators. That is especially true this year, for it is seldom we experience such a dry spring, and the beginning of summer seems to bring no improvement in the situation. Now is the time moisture is needed. Trees and bushes and plants are now pushing their growth. Where fruit bearing has begun, an additional burden is imposed. In the absence of rain, we must do what we can to get moisture from the air, and hold what we have by means of the dust blanket or soil mulch, a frequent and shallow stirring of the surface soil. We cannot control the rainfall; irrigation is hardly practical here, and entirely out of the question over the parts where the land is rolling, but we can exercise a great deal of control over the moisture in the soil by frequent cultivation. It is the next best thing, and a means whereby we can do a great deal to counteract the effects of drouth. I believe the time is near at hand when we shall be doing this with our grain crops as well. The question of controlling the moisture is one of the biggest ones confronting the Ontario farmer to-day, as well as the fruit grower. We must use the cultivator.

ORCHARD TILLAGE AND MANAGEMENT.

H. P. GOULD, assistant pomologist in the United States Department of Agriculture, in Farmers' Bulletin 161, "Practical Suggestions for Fruit Growers," treats on tillage as follows:

As a fundamental factor in progressive orchard management, systematic tillage is a practice of comparatively recent introduc-

tion. While the practice has become quite general during the past few years, and is growing more so, the principles underlying the operation are not so fully understood as they should be. A better understanding of these principles will make the operation more effective, because it will be more thorough.

The offices of tillage are several. Among the more important ones are:

1. The setting free of plant food by increasing the chemical activities in the soil.

2. The soil is made finer and hence presents greater surfaces to the roots, thus increasing the area from which the roots can absorb nutriment.

3. The surface of the soil is kept in such condition that it immediately absorbs all the rain that falls during the summer, when it is apt to be dry. Little is lost by surface drainage.

4. Moisture is conserved thereby. Where the surface remains undisturbed for weeks the soil becomes packed, so that the moisture from below readily passes to the surface and is evaporated, thus being lost to the growing crop. If the surface is kept light and loose by tillage, so that the capillarity is broken, but little of the soil moisture comes to the surface and evaporation is not so great. In this way nearly all the moisture remains in the soil, where it can be used by the plants.

5. Thorough tillage has a tendency to cause deeper rooting of the plants. The surface of the soil is made drier by tillage during the early part of the season than it would otherwise be; hence the roots go where the soil is moist. The advantage of deep rooting during drouth is obvious.

The relation of plant food and moisture to the welfare of crops and the influence of tillage thereon should perhaps receive some further attention. Doubtless all farm crops—not excepting the tree fruits—suffer more from lack of moisture than they do from lack

of plant food in the soil. All of the nourishment which the plant gets from the soil is taken in solution, and unless there is an abundance of soil moisture to dissolve the mineral plant foods it is evident that their presence in the soil, even in limitless quantities, could avail nothing for the good of the crop. The ideal tillage, then, is that which begins as early in the season as the soil can be worked, while there is still an abundance of moisture in it, and continues until mid season—that is, through the growing season of the plant. The aim should be to keep the surface, to a depth of 2 or 3 inches, as light and as loose as possible. This will be equivalent, so far as conserving the moisture is concerned, to spreading a mulch of straw or sawdust over the soil. The constantly moist condition of the soil under such a mulch is a matter of frequent observation.

But tillage, to be of value in fruit growing, must be practiced judiciously. If the soil is tilled when it is too wet, more damage may be done by a single cultivation than a whole season's effort in corrective methods can overcome.

There are cases where conditions will suggest that tillage of any kind is unwise. Such fruits as the strawberry, which produces its crop close to the ground and early in the season, obviously should receive little, if any, cultivation before the fruit is harvested. The practice of tillage, however, is correct in principle. The wisdom of the grower must suggest the proper application of it.

SOW A COVER CROP.

THIS is the month to cease cultivation of the orchard, and to seed it down to some cover crop; a course which not only lessens the labor of cultivation, but gives the busy fruit grower an opportunity to harvest his fruit during the autumn months. Oats or rye have been sown in some parts, but if rye is used it must be plowed under early in

spring or it will rob the ground of its moisture. Crimson clover is one of the best cover crops, where it succeeds; Mr. D. J. McKinnon, of Grimsby, has had excellent results with it, while at Maplehurst, an almost adjoining fruit farm, we have had failure during two successive seasons.

If once it takes hold, it helps to seed itself, so that if one can succeed with the first sowing perhaps the successive crops would be more certain.

We have had good success with Canada peas, sown in August, they furnish nitrogen and consequently improve the land. They are not destroyed by the early frosts. The cow pea has been much boomed, and in the Southern States it is perhaps the very best cover crop, but at the north it is killed out by the earliest frost.

THE HAIRY VETCH.

THE Hairy or Winter Vetch (*Vicia villosa*) has already been referred to in these columns as one of the very best cover crops for the orchard. It is not a rapid grower in the hot weather, but in the cool months of autumn it becomes quite vigorous and covers the ground completely. It is one of the best nitrogen collectors. Analysis has shown over 200 lbs. of nitrogen per acre, for a growing period of three and a half months, as the result of growing this plant. The only difficulty is the present scarcity of the seed. This, however, will soon be remedied, for the seed is easily raised, and if an orchardist can only procure a small quantity to start with he can easily grow sufficient for his own use each year.

OATS AS A COVER CROP.

TWO years ago, at a meeting of fruit growers in Rochester, we heard a representative fruit grower from Michigan say that in his state oats was the favorite cover crop. We have not yet tried it, but have several times mentioned it as possibly

desirable, but usually the criticism was adverse because it would winter kill. None of the critics, however, have had confidence enough in it to try it, and therefore none of them could speak with authority. Now comes the report of the Michigan Station for 1901, in which the Horticulturist, L. R. Taft, speaks of oats as a cover crop as follows:

"Oats seeded alone as an orchard cover crop grew 15 to 18 inches high. They held snow and leaves well during the winter, lessened the freezing and thawing of the soil, and also prevented the soil from freezing to as great a depth as on uncovered soils. The lessening of the injury from frost is considered one of the most vitally important results to be secured with orchard cover crops. Where oats was used as a cover crop the ground in the spring was practically free from weeds and remained moist considerably longer than where other crops were used. The oats was easily worked in with a disc harrow, and it is estimated that the cost of cultivating the orchard when oats was used was fully one-third less than when crimson clover was sown. Rape and turnips used as cover crops, while fairly satisfactory, were unsightly during the winter and gave off an offensive odor. Crimson clover seeded with oats was less satisfactory than either sown alone."

APPLES IN THE ORILLIA DISTRICT.

SECRETARY CREELMAN, of the Provincial Department of Agriculture, and Alex. McNeil, of the Dominion Department of Agriculture, visited Orillia last month at the request of the Board of Trade, to look into the apple-producing capabilities of the Orillia district. The members of the Board of Trade did everything possible to put the visitors in the way of securing the information required. Committees were appointed to drive them from place to place,

and to arrange for meetings with representative farmers of the district. The visitors found more Duchess apples than any other one variety. For these there is a fairly good local market in the Muskoka district before the summer visitors leave the highland and lake country of Ontario. There is also a certain demand for the same variety of apples in the mining and lumbering country along the north shore. At most, however, this market is limited in extent, and there are quite as many Duchess produced now as there is demand for. Very few winter apples are grown about Orillia. The Peewaukee is grown more extensively than all the other winter varieties combined. These have given fairly good satisfaction except that the fruit, being large, is apt to fall from the limbs while the trees are young. As the trees grow older this fault is in a measure remedied.

The Wealthy, which is grown to some extent, has given splendid satisfaction, being a good yielder and thriving well. Messrs. Creelman and McNeil will recommend that no more early apples be planted, and that a number of the Duchess already planted be top grafted with winter varieties. The Duchess is not so satisfactory as the Tallman Sweet for this purpose; still it serves very well for grafting on. In winter varieties they recommend the Greening, Ontario, Ben Davis, Wealthy, and Baldwin as a list to choose from, with the preference of confining as much as possible to one or two of these varieties. The Spy does not seem to do well about Orillia, although it does remarkably well in the Georgian Bay district.

ONE CONSIGNEE.

WHILE we advise contract sales as the best in all cases where practicable, it is evident that there will often be a surplus unsold, which must go forward to the commission merchant. We must not,

therefore, despise this middle man, who is often of the greatest service to the fruit grower.

Many, however, make the mistake of dividing their shipments, even in the same market, between several consignees. This is a great mistake, because it brings a man's fruit into competition with itself.

The wisest plan is to select one good reliable consignee in each city, and be as constant and regular in shipping goods to him as possible. He will soon learn the brand of his consigner, and make it known among the buyers, and will then often make sales in advance even of the arrival of the goods.

AMENDMENTS TO THE FRUIT MARKS ACT.

MR. E. D. SMITH'S bill to amend the Fruit Marks Act came up for discussion in the House of Commons last month, and was lost on a division. The aim of this bill was to provide for the inspection of fruit by Government inspectors before it was shipped, so that the responsibility for proper grading would rest on the Government inspectors. As the act now stands each packer must do his own grading and marking and become responsible therefor. The Hon. Mr. Fisher, in opposing the bill, said that no one should be as capable of properly doing the work of grading and marking as the packer himself, and that to inspect only ten per cent. of the packages, as Mr. Smith had proposed, would not sufficiently guarantee the quality. It would also be impossible to obtain a sufficient number of qualified inspectors at the season when they would be most required. The guarantee of the shipper, Mr. Fisher thought, would be worth infinitely more than any government guarantee, and the fruit grower, by a personal oversight of the grading and marking, had an excellent chance to build up his reputation.

Another bill by Mr. Henderson, of Hal-

ton, which provided for the defining of what should be second grade apples, was also lost on a division. The Minister of Agriculture agreed that it might be advisable to make a general provision in the act specifying what quality of fruit should be graded XX, and expressed a willingness to introduce an amendment for that purpose before the close of the session if it was thought necessary.

GERMANY SHUTTING OUT AMERICAN APPLES.

THE new tariff law of Germany, which will go into effect as soon as certain treaties have been made which must be negotiated in order to avoid complications that would arise under the new law, provides that between September 1 and February 1 no apples shall be shipped into Germany in packages, boxes, or barrels, or in any form except in bulk. This bars the crops of the United States and Australia. The crop of Canada was barred, anyway.—*London Free Press*.

POWER SPRAYING IN THE UNITED STATES.

MR. W. A. MACKINNON, chief of the fruit division, recently attended the large meeting held at South Onondaga, N. Y., in the Hitchings orchard, which has become quite famous on account of the unusual methods of management prevailing there. About 300 people were present at the meeting to witness the spraying demonstrations, to examine the orchard, and to study the system of cultivation which has made it such a success. The consensus of opinion among these practical orchardists was that power spraying was the only method suitable for large orchards, and that while individual fruit growers with small orchards might not find it profitable to purchase power outfits, yet by combining in the

purchase and operation of the sprayer they could spray all their orchards much more economically than they could do it by hand.

In Delaware a few orchardists started to use gasoline as a power, with the idea that one outfit would be sufficient for several farms, but they have such large orchards that they have found it profitable to purchase a power outfit for each. Fruit growers from that State seem to be delighted with the new method. When told that the Dominion fruit division was giving orchard demonstrations to show our farmers the value of power sprayers, they were lavish in their complimentary references to the practical educational methods of the Dominion department. It was freely admitted that in such matters Canada is in advance of the United States. It is evident over there that the new system has come to stay, although with them it may be only the richer and more extensive orchardists who will take it up at first. In Canada, however, it is quite practicable for a group of farmers owning 3,000 or 4,000 trees among them to co-operate so as to have all their spraying done with a power outfit costing from \$250 to \$300.

NEW SAN JOSE SCALE REMEDY.

A NEW San Jose scale remedy is being tested with considerable success in the Niagara fruit belt. It is known as McBains' Soluble Carbolic Insecticide. No boiling is required. It mixes instantly with cold water. It is claimed to destroy all kinds of scale, fungus and parasites, and can be used for spraying in winter and summer. To one gallon of mixture add 25 of water in winter and 50 in summer. Use as a winter spray when the leaves begin to fall, and as a summer spray after the buds are nicely formed.

THE PEAR LEAF BLISTER

WE have several times received from subscribers in various parts of our province, samples of pear leaves having black corky spots upon them, and these were either a mystery to the senders, or else supposed to be either leaf blight, or scab. After consultation with Prof. Fletcher, of the Central Experimental Farm, we were able to reply that the cause of the trouble was a minute mite (*Phytoptus pyri*), belonging to the same order (*Acarina*) as the cattle tick, and the itch spider. Fig. 2600 shows an adult mite, greatly magnified. Indeed, these mites are so small that they cannot be seen without a glass, and to study their structures a first-class microscope is necessary.

Bulletin 61 of the Cornell Experimental Station, gives a most excellent account of this mite, written by Prof. Slingerland. To give an idea of their diminutive size, he says that it would take 150 of them placed end to

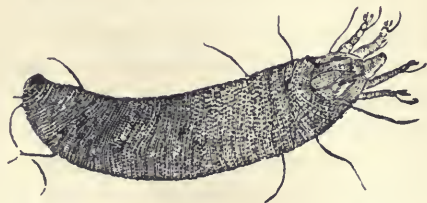


FIG. 2600. PEAR LEAF BLISTER MITE.

end, and 600 side by side to measure an inch. These tiny mites winter underneath the outer scales of the buds, fifteen or twenty having been found underneath a single bud scale. Thus situated, they are ready for mischief early in the spring.

The diseased portions of the leaves are

really galls, produced by these mites, and within them the eggs are deposited; they are quite easily distinguished from the fungus spots by their blister-like corky appearance.



FIG. 2601.

Fig. 2601, from the bulletin referred to, shows a highly magnified section of a pear leaf through one of these galls, *g*, showing gall; *n, n*, normal structure of leaf; *o*, opening of the gall; and *e*, eggs of the mite.

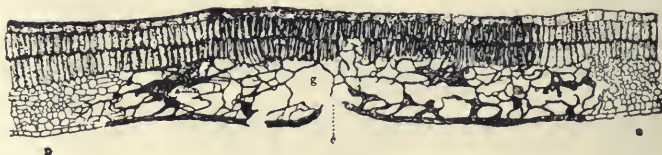


FIG. 2602.

Later in the season the galls dry and turn brown or black, and are more conspicuous on the lower side. The leaf in the meantime has shrunk to its normal thickness, as shown in Fig. 2602, in which *g* is gall, *n, n*, uninjured portion of leaf, and *o*, opening to gall from under side.

Various remedies have been experimented with, but the most successful one, according to Prof. Slingerland, is a thorough spraying in winter with kerosene emulsion diluted with from five to seven parts of water. Apply from every side, so as to reach all autumnal buds, for it is about them the blister mite is most abundant.

THINNING FRUITS.

THE past season has demonstrated more clearly than ever the necessity of producing a better grade of fruit than can be grown by the "let alone" method so long practiced by most of our growers. The results of thinning out a liberal amount of fruit from an overloaded tree or plant are (1) that the foliage becomes more vigorous and more resistant to insect and fungous pests; (2) the remaining fruit grows larger and more perfect in size, color and quality; (3) the larvæ of the codling moth, the insect producing wormy fruit in the apple, pear and quince and the larvæ of the plum curculio that produces the wormy plums and cherries, are destroyed in the immature fruit when it dries up or decays on the ground, and much less labor is required to sort and pack the remaining fruit when it is harvested. The price obtained for fruit from carefully thinned trees or plants is certain to be much higher than if all the fruit were allowed to remain unthinned, while the cost of thinning is not much greater than would be the extra cost of the final picking and sorting of so much inferior fruit.

The best time for thinning fruits is as soon as it can be determined what specimens are injured by insects or by any other

cause. The best time for the apple, pear, peach and plum is early in July. The grape should be thinned as soon as the size of the bunches can be determined, which may be the last of June or the first of July. The amount of fruit to be removed will depend largely upon how much has set. In some cases three-fourths should be removed. In the case of peaches and plums the fruit should not mature on the branches nearer than six inches apart if the whole tree is fruiting. With apples and pears the amount of thinning to be done must depend upon the size and vigor of the trees, but all wormy and deformed fruits should be removed even to the extent of taking the entire crop, for in the majority of cases such fruit only serves to increase the number of insects the next year and will not pay the cost of harvesting if allowed to mature. In thinning the grape all small bunches should be removed if the fruit is intended for market, as only large, full bunches will sell for good prices, and only a limited amount, depending upon the strength of vine, should be allowed to remain on each cane. In vineyards at full growth from 10 to 20 pounds of fruit will be all that each vine can mature and retain its vigor.—*Massachusetts Experiment Station Report.*

MARKETING CHERRIES.

THIS is an old topic, but will be of interest, notwithstanding. I see nearly every day, in fruit time, examples of loss and waste, in putting fruit upon the market in an unripe or unmerchantable condition. Only the other day I saw in a grocery some cherries in a drawer in front of a grocery,

which had been picked as much as six days sooner than they should have been.

They were not only small and green but very imperfect. There were stems without cherries and cherries without stems, and all together about as uninviting a lot as I ever saw.

The next day I brought some to market, which I had picked myself carefully with the stems, putting in no specimens which contained defects visible on the outside.

Without telling the grocer that I had any, I asked him if I could sell him some. "Why, no," he said; "we have cherries and they go very slowly." I got him to look at the few baskets I had and he asked me my price and took them and ordered some more for the following day. He paid me a higher price at wholesale than he asked for the others at retail, so that it is altogether possible that the party furnishing the others did not receive more than half or two-thirds what I did.

The cherries being picked green were not more than half size, so the picker had to pick double the number for the same measure, losing the growth as well as the beauty of

the matured fruit, which is the most salable quality fruit possesses.

It is worse than useless to take to market a single specimen of anything which is too poor to be consumed.

There is a loss in marketing immature fruit. There is a loss in size and increase in labor and a final loss of price. Cherries require the most careful handling of any fruit sold, and I find it is profitable to hire it picked by mature hands of good judgment. They will more than save their wages in the discrimination they use in gathering the fruit.

In gathering large cherries with the stems six or eight quarts per hour can easily be gathered. I find that they are best marketed in the quart berry boxes; this saves rehandling and much mussing of the fruit. —*L. B. Pierce in Green's Fruit Grower.*

THE ACIDS OF FRUITS.

THE grateful acid of the rhubarb leaf arises from the malic acid and binoxalate of potash which it contains; the acidity of the lemon, orange, and other species of the genus *Citrus* is caused by the abundance of citric acid which their juice contains; that of the cherry, plum, apple and pear, from the malic acid in their pulp; that of gooseberries and currants, black, red and white, from a mixture of malic and citric acids; that of the grape, from a mixture of malic and tartaric acids; that of the mango, from citric acid and a very fugitive essential oil; that of the tamarind, from a mixture of citric, malic and tartaric acids; the flavor of asparagus from aspartic acid, found also in the root of the marsh mallow; and that of the cucumber, from a peculiar poisonous ingredient called fungin, which is found in all fungi, and is the cause of the cucumber being offensive to some stomachs. It will be

observed that rhubarb is the only fruit which contains binoxalate of potash in connection with an acid. It is this ingredient which renders this fruit so wholesome at the early commencement of the summer, and this is one of the wise provisions of nature for supplying a blood purifier at a time when it is likely to be most needed. Beetroot owes its nutritious quality to about nine per cent. of sugar which it contains, and its flavor to a peculiar substance containing nitrogen mixed with pectic acid. The carrot owes its fattening powers also to sugar, and its flavor to a peculiar fatty oil; the horse radish derives its flavor and blistering power from a volatile acrid oil. The Jerusalem artichoke contains fourteen and a half per cent. of sugar and three per cent of inulin (a variety of starch), besides gum and a peculiar substance to which its flavor is owing. —*Chemistry of the World.*

NOTES FROM THE FRUIT EXPERIMENT STATIONS.

THE following reports from the various Fruit Experiment Stations give a good general idea of the outlook for fruit throughout the province:

FROM WENTWORTH.

In reply to your enquiry with regard to fruit prospects, I may say everything looks very promising. In fact, there is entirely too much fruit set. Unless nature does some thinning a great many orchards will be overloaded. The fruit and foliage never looked healthier than at present, not the first appearance of fungus on either fruit or leaf, not even on Flemish Beauty pears, and very little trouble from insects, except curculio, which has been pretty bad on plums, but nearly all varieties need thinning. If we get rain for the berries from the present indications there will be a great abundance of everything in the way of fruit.

Winona.

M. PETTIT.

FROM BRUCE.

The prospects for fruit in this district are only fair; we have had some very hard frost. Apples promise very good so far, and trees are healthy and free of scab. Pears promise fair, and plums very good crop, but they were damaged some by a very heavy wind, rain and hail storm on May the 28th. Cherries will be a light crop, as are also red and black currants. Raspberries promise to be fair, and strawberries a good crop.

Walkerton.

A. E. SHERRINGTON.

FROM SOUTH SIMCOE.

Apples have set a large crop of fruit. Pears bloomed sparingly with me, and there will be a light crop of fruit. Japan plums

will also be scarce; indeed, all varieties failed to bloom. Common sour cherries have set a nice crop; my Dyehouse are nil. Strawberries promise a large crop now that the late cool spell is over. We had a light frost one or two nights last week, but I cannot see that any harm has been done.

The late dry spell, just at planting time, which here was a little later than usual, owing to the plants having made little or no growth till after the 24th, has been hard on the spring set plants; indeed, there will be a shortage in next year's supply, as many of the plants have died.

The native varieties of gooseberries, such as Pearl and Josselyn, have set a nice crop, but the foreign varieties, owing evidently to the scourging they got with the mildew last season, have not only failed to bear, but nearly every bush is dead or partly so. Columbia and Whitesmith have stood the winter the best.

Shaffer raspberry winter killed badly, while Columbia came through the winter sound to the tips.

Nantyr.

S. SPILLETT.

FROM ONTARIO COUNTY.

The present prospect for fruit of all kinds was never better in this section. The fine sunny weather at blooming time had a very beneficial effect in aiding the fruit to set well and many varieties both of apples and pears will require thinning severely to get large samples. Almost every tree planted in 1896 and 1897 will have fruit on this season, and the fruit is fully one week in advance of former years. This is the eighth year our Spies have loaded in succession, although

many fruit growers will insist that the Spy is only a biennial bearer. The fine weather is also developing the insect pests, and unless spraying is attended to vigorously a large percentage of the fruit will be unfit to sell. There is more attention being paid to the orchards in this district this season than for many years previous, as orchardists are beginning to realize that unless their fruit is fit buyers and shippers will pass them by.

We had our first ripe strawberries on the 29th ult., two weeks earlier than last year. Small fruits, with the exception of grapes, are looking splendid, and promise a good yield if weather is favorable.

Whitby.

R. L. HUGGARD.

FROM SIMCOE.

With regard to the fruit crop. We have had a fine rain lately, but too late to save the strawberry crop from serious injury by the previous long spell of drouth. The crop is below average in quantity and quality. Raspberries will likely be a medium crop if showery weather continues. Blackberries are in fine shape and promise a very large crop. Plums, medium, some trees heavily loaded, many entirely barren. Cherries and pears are light; cherries not half a crop. These were no doubt injured by the heavy frosts in May, just when the blossom buds were bursting, as there was a heavy bloom, but it failed to set fruit. Early apples will not be more than half the crop of last year. But winter apples so far promise an excellent yield, about average, and the quality will likely be good.

Craighurst.

G. C. CASTON.

FROM ST. CATHARINES.

W. H. Bunting, in a report on the fruit situation to the Sun, says: "The prospects at present, barring a heavy dropping of the tree fruits owing to the continued dry

weather, are very promising for a large and abundant crop of all kinds of our more important fruits, with the exception of apples, which, owing to the unusual crop of 1902, will be of only moderate quantity this season, some varieties and some localities showing good average, while others are comparatively light, and in some cases none whatever. We are now experiencing a great lack of moisture, and while in some localities there have been a few showers and heavy rains of short duration, which have relieved the situation to some extent from many portions of the province reports are coming in of scarcely any rain since the first of April. This fact, coupled with the heavy frost early in May, which did considerable damage in the eastern part of the province, points to a marked scarcity in the smaller fruits, such as strawberries, raspberries, etc.

"In this (St. Catharines) section strawberries are ripening about ten days earlier than usual, and the season will likely be of short duration. Cherries and plums are well set, and as a great deal of spraying has been, and is still being, done, no doubt these crops will be of satisfactory quality.

"Peaches promise a full crop, with the exception of Early Crawfords, which were cut down by the May frost, and the Elberta, which has suffered severely from the curl leaf, and will no doubt drop their crop. I have as yet heard of no successful remedy for this difficulty, although the Bordeaux mixture and the lime, sulphur, and salt mixtures has in some cases lessened the effects of this disease.

"Pears have not set heavily, with the exception of the Kieffer, and one or two other varieties, which have promise of full crop.

"The vineyards generally are looking well, and give promise of a heavy crop of fruit this year. A word of warning to our vineyardists will, however, be in order. During the past two or three years the dis-

ease called 'black rot,' which has done so much damage in Ohio, and in portions of New York State, as well as in the western part of our own Province, has gained a strong foothold in the Niagara district, where by far the larger portion of the grapes consumed in Canada are produced. This disease has affected primarily the Rogers variety, but has also made, during the past two years, severe inroads upon the vineyards of Niagara grapes, and in some instances has taken hold of the Concord as well. Thorough and frequent applications of the Bordeaux mixture have been shown to be a specific for this disease, and it would seem a matter of prudence for all owners of vineyards to be on the alert and check this disease before it shall have spread over the entire district and have destroyed what is fast coming to be the most important fruit product of the section referred to.

"Taking it all in all, the coming fruit season promises to be a busy one for the aver-

age fruit grower. With the great scarcity of competent help, and consequently much higher wages to be paid, and a general increase in the cost of handling the crop, unless a good distribution of the crop be made and fair prices realized throughout the season, it may be that many of our growers may not consider an abundant crop of fruit an unmixed blessing. A full crop, however, will no doubt result in putting an abundance of the gifts of the Great Creator into the hands of the thousands of our cities and towns who in years of scarcity cannot afford to enjoy them. It only remains for our express and transportation companies to awake to the situation and provide such facilities, both as to moderate rates and prompt service, as shall supplement the efforts of the vast body of earnest fruit growers of our Province, and the close of the season will see all concerned—producer, handler, and consumer alike—well satisfied with the result of the season's operations."

ORCHARD MEETINGS IN NEW BRUNSWICK.

UNDER direction of the Department of Agriculture for the Dominion, a series of twelve orchard meetings was held in New Brunswick this spring.

They were addressed by Mr. Alex. McNeil and Mr. G. H. Vroom, Dominion Fruit Inspectors, who gave practical demonstrations in pruning, grafting, spraying, and "orchard repairs" generally.

Not a little of the success of these meetings was due to the efforts of Mr. Thos. A. Peters, Deputy Commissioner of Agriculture for New Brunswick, and Mr. W. W. Hubbard, representing the agricultural interests of the Canadian Pacific Railway.

The following notes are from Mr. Mc-

Neil's report to the Chief of the fruit division:

Our meetings covered the St. John Valley from Andover South, as well as the points between St. John, Hillsboro, and Shediac. This wide range of country may be conveniently divided into two districts, the one lying north of Woodstock and the other south. The northern division is growing the hardier varieties of apples, and in certain favored spots the Ben Davis and some of the winter varieties succeed. The southern district is growing all the commercial varieties, but the Duchess (New Brunswick) is the commonest variety, and in many places is grown to the exclusion of all others.

The quantity of early apples is about sufficient for home consumption, and it is doubtful whether large plantations of such varieties as Duchess, Red Astrachan, or even such good fall varieties as the Gravenstein and Yellow Bellflower should be made. The European market at present is the only one that can be said to be unlimited, hence only such varieties as will carry successfully can be recommended for large plantations of commercial fruit. In the northern districts there is still room for experiments in the matter of winter varieties. Although many of these have been planted, the results as reported by the growers are somewhat conflicting. The care, however, given to orchards varies so much that it renders any conclusion impossible. It is therefore highly desirable that experimental orchards, not necessarily large, should be planted in different sections of the country, under conditions as uniform as possible. Such orchards would not only be an example of the best methods in orcharding, but would give reliable data with reference to varieties. Although I am not in a position to speak absolutely upon the subject, I am of the opinion that the varieties most in demand in the European markets can be grown in this district, though it would be no doubt better to top-graft on some such stock as McMahon's White or Tallman Sweet. It may be taken for granted that with ordinary precautions all the commercial varieties can be grown in the southern district.

The orchardists of New Brunswick are making one or two serious mistakes in orchard practice. In most of the orchards the trees are planted from 12 to 16 feet apart. This is altogether too close; much better results could be obtained even with the Duchess, a small growing tree, if it were planted 25 to 30 feet apart. Large growing varieties, such as the Rhode Island Greening and Northern Spy, should not be planted closer than 35 or 40 feet apart. The

saving in close planting is only in the rent of the land; there is a serious loss in the difficulties of performing all orchard operations. The rent on the land occupied by a tree, even at the greatest distance, should not be more than ten cents per tree, a sum that is soon gained by the ease with which spraying, pruning and gathering of the fruit may be done.

This close planting practically leads to letting the orchard run to sod, and to this fact I feel sure we can attribute much of the want of success that has been reported in individual cases. I take it for granted in recommending orchards in any place, that clean culture is to be the rule. We visited, in Fredericton, the orchard of Mr. Gillman, where we saw a splendid example of comparatively wide planting and clean culture. The vigor of his trees was so much greater than that of the orchards in the neighborhood, grown in sod, that all who have carefully studied the conditions must agree that clean culture must be the general rule for orchards. In nearly every orchard visited we found the trees badly infested with oyster-shell bark-louse, and Sun-scald was quite prevalent. For the former it was recommended that when the trees were dormant they should be sprayed with a lime whitewash made just as it would be made to use with a brush, strained carefully and applied with a spray pump. In addition, spray carefully with a kerosene emulsion when the bark lice are moving in June. For sun-scald it was pointed out that if the tree were leaned a little toward the southwest, so that the limbs would shade the trunk, and if the pruning were not too severe, this injury might be prevented. There appears to be some difficulty in getting suitable nursery stock, though it is likely that the Department of Agriculture, working through the Agricultural Societies, will make an improvement in this matter.

The necessity for thoroughly under drain-

ing orchards is not appreciated as it should be. Much of the land, especially along the banks of the St. John river, appears to be admirable in situation and soil for orcharding, but much of it requires very careful under draining before successful orchards can be obtained. There are so many springy places, even on high land, that uniformity in the orchard cannot be hoped for except by under draining.

The prospects for orcharding in New Brunswick appear to me to be good. There is, however, a lot of educational work to be done. There is scarcely a farm upon which

there is not at least five acres suitable for orchard purposes. Presuming that fifty trees were put upon an acre we should have 250 trees in each orchard of five acres. It would not be too much to say that at the age of eight years, when these trees are coming into bearing, each tree would be at least worth \$10.00, so that practically the value of the farm could be doubled in eight years by placing an orchard upon it. This orchard would furnish remunerative employment for a large number of people, and thus prove itself a benefit to every other industry in the country.

PREPARING PLUMS FOR MARKET.

IN most cases experience has proven that plums, if shipped to market in ten-pound grape baskets, provided with handles, and put up in neat, presentable shape, will bring the producer a greater per cent. of profit than if shipped in half-bushel, or bushel crates, or packages. A careful picker can fill the basket direct from the tree; but the usual plan is to pick into large receptacles, then, carefully sorting the plums, to place them in packages ready for the market. This frequent handling removes a great deal of the bloom from the fruit, which removal should be avoided as much as possible. By the use of a single table, similar to the one shown in the engraving, from the American Agriculturist, plums and other

similar fruits are easily sorted. The top of the table should not be over three feet long and two and one-half feet wide. The sides and back, *r, r, r*, may be eight inches wide at the back, tapering to three inches in front; the front guards, *c, c*, should be less than three inches high, leaving a six-inch space between the inner ends; the slanting board, *g*, is six inches wide. To operate it, place the fruit carefully upon the table, the sorter occupying a chair in front of the table, with a basket on his lap. Both hands can then be used in removing the leaves, limbs, damaged or imperfect fruit, throwing the refuse into baskets; *m, m*, located upon the floor, at a convenient point upon each side. The perfect fruit or that intended for shipping, is rolled in front, and passes over the incline, *g*, into the basket. This table need cost but little, and may be made in as crude or elaborate a form as wished. In working, the elbows can rest upon the guards, *c, c*, which will make the operation much easier. An ordinary table can be fitted with these simple appliances, and quickly removed after the shipping season is passed.

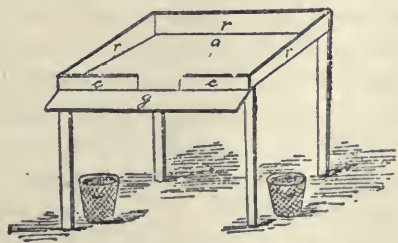


FIG 2603. FRUIT SORTING TABLE.

EUROPEAN FORESTRY

BY

MARCEL HOEHN,

BERLIN.

FORESTRY is a subject so comparatively new in Ontario, and yet of so great importance to our people that anything we can learn from those who have had experience should be welcomed. The following interesting article is contributed by one of our correspondents, who has had long experience in forestry in Germany:

The question is often asked, Why is it that in Germany and France forestry has been successfully practised by the government for a century and a half, and we are only now thinking of teaching coming generations how best to conserve our forests? By long years of education and practical experiment, forestry has become an art in those two European countries. There, as a rule, they look ahead. They reforest their woodland and do not deforest it. It is managed as carefully as a gold dollar. Everything is eked out and boiled down systematically before they enter the woods. The forests are cropped when they are ripe as regularly and methodically as a farm crop. They have no open season methods, for one crop is followed by another crop in regular rotation. They have no denuded woodland, for one crop is immediately followed by another, and the last is always better than the one preceding.

When the original forests are cropped in order to start a new or young plantation, every tree is removed. Nothing is spared except a few nurse trees, and each one has to pass inspection, for it would be poor policy to leave one which is partly diseased or crooked. The ground is never in better condition to grow young seedlings than just

after the removal of the original forests. Nature has provided the forest floor, with millions of seeds of all kinds, and they are only waiting for sunlight and air. Under a thick shaded canopy they will not germinate readily. Young forest seedlings under this systematic treatment must come up together properly and crowded thickly. They must touch each other, and the more struggling and fighting that goes on amongst the plants the better. Otherwise there would be a failure, as the forest plants must pass through a regular series of transformations all together in order that they should develop in a uniform manner and produce regular stems, and it is in this camp or school that such transformation must take place before the plants are thinned. There are only two stages of growth in a young forest; the nurses and the young seedling.

Under this system it is surprising how rapid the growth is. In five or six years the young seedlings are ready to be thinned, and in fifteen or twenty years you will have a forest of which you may be proud, for it will be a delight to look at. We cannot view the art of forestry as practised in Germany or France to-day without feeling the deepest respect and admiration for it. It is a credit to skill and long and patient experiment, resulting in improved methods. As all the trees are of one age, they are of the same height and thickness, all straight, smooth, sound, and without limbs on the trunks. In a systematic forest there will never be any over ripe trees, for as they are all of one age they will all ripen together and be cropped together.



FIG. 2604. JAMES MILLS, M. A. LL. D.

JAMES MILLS, M. A. LL. D.

"God might have made a better man than an Irishman, but he never did."—Anon.

DR. JAMES MILLS was born of North of Ireland parents, in the County of Simcoe, Ontario, in the year 1840. There, until he reached twenty-one years of age, he received a most thorough training in all the practical details of Canadian farm work, as the farm upon which he was brought up, and upon which he worked, was one of the best managed and best cultivated in the province. So far his life had been intensely practical. A

serious accident formed the turning point in his career. At twenty-one he lost his right arm in a threshing machine, and, thus handicapped, he stood upon the threshold of his life work with responsibility, and what some might call disaster, staring him in the face. He then entered the public school and began his education at the time when the majority of young men have already finished. Hitherto his training had been manual or physical; now he began to

develop the mental side of his nature. From the public school to Brantford Grammar school, and thence to Victoria College, Cobourg, he was led in his studies. From Victoria College he graduated as Bachelor of Arts in 1868, taking the gold medal for the year for the highest rank in general proficiency. Thus closed the second period of his life, and the seven years of study and preliminary training. After graduation he taught for a while in the Cobourg Collegiate Institute, from which position he was promoted to the headmastership of the Brantford High School. This institution was then in rank a third or fourth rate school; under Mr. Mills it soon became a Collegiate Institute, and began to attract attention as one of the most successful for training young men and young women for general work, for teachers, and for university examinations. The growth of this school and its reputation for thoroughness and good discipline suggested a man for the Agricultural College when the presidency became vacant. The offer came to Mr. Mills from the Government entirely unsolicited, and was accepted in the summer of 1879, when began the fourth period of his life, the work in which he is still engaged. The Ontario Agricultural College had been established in 1874, and for many years had many and great difficulties to contend with. We sometimes hear a great deal about the agricultural colleges of the United States, but they have been forced, in order to maintain an existence, to enlarge the scope of their work by including technical, teachers, and even commercial courses. In many of these colleges the agricultural course has been the least successful. The attempt, therefore, to maintain an Agricultural College on its own merits in this province has presented peculiar difficulties, and the success achieved is much to the credit of the various officials who have from time to

time guided its course. When Mr. Mills became president the college was still working up hill, fighting its way with little encouragement, and with much opposition. For the past twenty-four years he has devoted his unstinted energies to the work. The college is a large institution, and has presented extraordinary problems to solve. It has had a hard struggle to gain the recognition and approval of the very class for which it was established. It has all the perplexities attendant upon a large boarding school. It has had to overcome the prejudice aroused by having had, in its earlier days, a number of students who were not agricultural in their bringing up or in their inclination. The students are now coming from the best farms in the province, and the institution is becoming more and more every year an Agricultural College for Ontario.

The work of the college has been greatly enlarged during President Mills' regime by the addition of third and fourth year courses, and affiliation with Toronto University, whereby the degree of Bachelor of Science in Agriculture is conferred upon its students.

The high esteem in which President Mills is held by the farmers of Ontario, and the very high regard in which he is held by the leading agriculturalists of the United States prove that his work has been successful. Personally, President Mills has the best wishes of all; he is known as a man of energy and thoroughness. He has shown the greatest courtesy to the many thousand farmers with whom his work brings him in contact at Guelph and elsewhere; he has kept himself free from party politics, and is as acceptable to Conservatives as to Reformers. His administration of affairs is clear and above reproach. He has never been known to seek praise or publicity, to sound his own praises, or encourage others

to sound them for him, to gain any notoriety by pulling or tickling the ear of the public. He has simply done his duty, and that not always a pleasant or a popular one, and has allowed himself to be judged by the public on the merits of the work done. His work speaks for him, and the agriculturists and others of this province know that the Ontario Agricultural College embodies the life work of President Mills and the many

energetic workers by whom he has surrounded himself during the past twenty-four years. Since Dr. Mills has been given full control of the College things have become settled into systematic methods, and one can see evident marks of progress in every department. Since the college opened last September more than seven hundred students have been enrolled.

FLORICULTURE FOR WOMEN.

RAISING flowers in greenhouses for market is a profession for which women are proving themselves especially adapted. It is a business that has to be learned like any other, but with a little experience added to natural qualifications, such as perseverance, energy and common sense, one is sure to succeed. The plant I own and am running at the present time was started on \$250, and I have built up a large, well-paying business. Given an acre of land, the first requisite, of course, is a greenhouse. A modest one can be built for \$100 and a rough heating apparatus put in for \$50. The cost of plants and seeds is slight, and other expenses, such as tools, fertilizers, cold frames for starting the plants, etc., would amount to little on so small a scale. The secret of success is to utilize every inch of space. In a vegetable house the tables can be filled with lettuce, cucumbers or tomatoes, while rhubarb and mushrooms can be grown on the ground underneath. A good head for planning is a necessity, and no time must be wasted between crops.

The best location for such a venture as this is a small town or community of pros-

perous people. In a prosperous community you do not have to market flowers; customers will come to you for them. I sell all my flowers at my greenhouses. The profit is in decorating and set pieces rather than in cut flowers. A great advantage in this profession is that there is so much room in it for originality and taste. A branch in which a great deal of money can be made is in the sale of plants. All kinds of bedding plants are wanted in May and June for lawns, parks, cemeteries, cottages at the seashore, vases and wayside nooks. Pots filled with two or three California violet plants in bloom brought seventy-five cents in this city last winter. Pansies are in demand in their season. Ferns, palms and orchids grace your dining rooms, churches, etc. The filling of window boxes, designing new effects in jardinières and hanging baskets is a line in which a woman can be very successful. The rose in all its colors is one of the most profitable flowers to grow under glass. The demand is great and people must have them.—*M. E. Cutler before Massachusetts Horticultural Society.*

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

SUGGESTED LINES OF WORK.

BY

MISS JESSIE M. GOOD, SPRINGFIELD, OHIO.

USUALLY the first question arising in a new association is that of adequate funds to cover the work desired to be accomplished. This difficulty is met in several ways. First, of course, by membership dues. Then by subscription or donation. Third, by some form of entertainment. There is a wider latitude in entertainments for civic than for church work. One association I know of netted more than three hundred dollars by giving a steamboat excursion. We cannot all live

by river or lake, but every town has some favorite resort. Musicales, theatricals, lawn fetes, picnics, are all popular.

Many places have found it to their advantage to have depositories in prominent stores, banks, etc., for the accommodation of those who favor the organization but have not time to attend meetings or assume the duties of committee work. Strangers, charmed by the town's beauty and cleanliness, often put money in these depositories, which should be neat and plainly labeled with a brief statement of the objects of the association. There is a growing tendency among old established improvement associations to send out collectors. These collectors may be paid by the day or with a percentage of their collections. There are also art associations which loan or rent pictures for exhibitions. An art loan, if properly advertised in the towns around you, with excursions from certain points on each day, ought to pay well if properly managed. A flower show, to which an entrance fee is charged, is an appropriate means of raising funds for civic improvement. A rose show is the thing for June, a chrysanthemum



FIG. 2605. SHRUBBERY SCREENING HIGH BOARD FENCE.

show for autumn. Preparation for the latter must be made in spring, and will be found an excellent thing to keep alive the interest of your association. I would have plants and cut flowers of other varieties for sale, but roses and chrysanthemums must be the main feature. The sale of plants and cut flowers never fails to bring the treasury a handsome sum.

As to the application of money, you will as usual find you never have money enough for the work you desire to do. I advise new societies to concentrate the little they have in putting in order the most unsightly and offensive place or places in town—alleys, sidewalks, gutters, the railway station, the public square, the church or school yards, or the cemetery grounds. Whatever it may be, put it in order and keep it so.



FIG. 2606. THE ROAD PASSING THE FAIR GROUNDS BEFORE IT WAS IMPROVED.

Make it so clean or so pretty that it is noticeable.

Do whatever most needs doing, and do it so systematically and thoroughly that no adverse criticism can be made; do it tactfully, make no enemies. Let the city officials know that you intend to work in harmony with them and to support them in all their efforts for the public welfare. As the secretary of one association wrote me, "we do

the things that are outside the province of an alderman's duties, while, by arousing public opinion and a general civic pride, we really make it easier for them (the city officials) to make laws tending to the town's improvement."

There has been much curiosity regarding the management of the prizes offered by improvement associations. One association, after some experience in this work, has divided its city into four districts, through the middle each way as nearly even as possible, and to each district offers the following prizes: Ten dollars for the best lawn (this includes front and back yards, shrubbery, flowers, and general neatness of alleys and gutters). Five dollars for the second best premises. Ten dollars for the best kept school yard. Five dollars for the second best (money, to go to the janitors, or whoever does the work. Ten dollars for the best kept lawn about a public building other than a school house. Five for second best. This last prize will include the postoffice, library, court house, church yards, etc. Three dollars for the best window or porch box. Two dollars for second best. Five dollars for the best grown vines that cover fences, porches, or windows. These vines to be the tender annuals, not the hardy vines that require but little care from year to year. Ten dollars to the neatest and most improved premises (front and back) along any railroad within the city limits. Five dollars to the second best. The improvement to be judged by comparison with the condition of the property the previous year.

A special prize of ten dollars is offered for the best kept premises of a man or woman living in rented property, and whose income does not exceed twelve hundred dollars a year. I should have stated earlier, perhaps, that all these prizes were limited to applicants whose incomes do not exceed the above sum. The aim is to arouse interest

in beautiful surroundings among people whose income obliges them to take care of their own lawns. This prize gave possibly the most satisfactory results of any offered the previous year. A member and interested friend of the association has offered eight prizes of five dollars each to go to a boy and girl in each of the four quarters of the city as divided by the association, who can show the best flower bed planted and cared for by himself or herself. The boy or girl must not be over sixteen years of age.

The offer of these prizes was published several times in each of the city papers. Neat circulars were printed and distributed to the pupils of the various schools until the offers were thoroughly understood. All applicants must file the notification of their entrance in the contest by the 15th of June, and as soon after as possible the awarding committee will visit the premises of all contestants and examine them from gutter to al-

ley. Another visit is paid in August and another in September, after which the committee announces the winners. No one knows the days the committee chooses for its visits, and the prizes are awarded strictly on the merits of the premises as found.



FIG. 2607. THE SAME ROAD AFTER BEING IMPROVED BY THE LOCAL SOCIETY.

PARKS AND GARDENS

BY THE EDITOR.

IT is a remarkable fact that only of recent years have public parks become numerous, for previously parks and gardens were exclusively private property, and none but the wealthy could have the full benefit of such luxury.

Nowadays a great change is coming over the nations, and even the governing bodies of our towns and cities are coming more and more to appreciate the great value of such breathing spaces for the health of all classes, as well as for their enjoyment and recreation.

Perhaps the highest ideals of park beauty are to be seen in Great Britain, where the magnificent parks connected with private estates have cultivated public taste in that di-

rection and led to a universal demand upon governing bodies to provide similar privileges for the people at large. So rapidly has this spirit developed in that country that already there are more than one thousand public parks and pleasure grounds in the British islands, of which two hundred are in London and fifteen in Glasgow. The total area of the parks of London is about 19,000 acres, and that of Glasgow 1,000.

Nor is the United States lagging at all behind; for since Boston and Chicago have taken the lead in establishing magnificent park systems, the whole country seems alive with enthusiasm, and even our own Canada is waking up to her wonderful possibilities along this line.

SCHOOL GARDENS .

BY

PROF. W. LOCHHEAD, O. A. C., GUELPH.

SIGNS are not wanting that school gardens will play a more prominent part in the education of the child in the near future than they have done in the past. In Europe the influence of school gardens has been felt for many years, and most of the governments of northern Europe have provided liberally for their maintenance. In Austria the school garden is maintained for the specific purpose of improving the general education and instruction of the scholar. There it is "a large outdoor slate on the soil to put living things on to be rubbed out." In Sweden it aims to give an industrial training along with a general education, and it has done

much to promote agriculture. In Prussia the school garden plays an important part in the industrial training of the child, and has very materially advanced the fruit-growing industry of that country. In France and Belgium, school gardens have done much to promote the growth of flowers, vegetables, and fruit.

Some educationists believe that the Austrian ideal is the best, as it does not attempt to give an industrial training along with the primary education. Whatever may be our views regarding this matter, this much is clear that the main purpose of the school garden should be to improve the instruction given in the school. It should be incorpo-



FIG. 26c 8. BROADVIEW BOYS' GARDEN, TORONTO

rated into the organization of the school. As one writer states, "Every subject of the time-table should be modified by garden work, and the instruction in almost all of these should be improved by being more real and vivid and more stimulating through manual labor." Many persons will ask: "Of what value are school gardens?" In answer to this question, the value may be stated concisely as follows: (a) It inculcates habits of order, care, neatness and method, and forces the child into a habit of constant observation; (b) it brings the mind into closer communion with nature; (c) teacher and scholar are brought into closer touch; (d) physical recreation of a helpful, pleasurable nature is provided; (e) it provides a hobby that may keep many from less desirable occupations during their leisure time; (f) a greater interest is taken in garden work in the community; (g) indirectly, a love for home and its environments is created; (h) it gives boys and girls the rudi-

ments of an industrial training which may be of value in later life.

From the instructional point of view school gardens are valuable on account of the large number of special studies which may be carried on by the children in connection with them. Some of these special studies are: (a) the broad distinction between soils—the different kinds, and their differences as far as can be made out without too elaborate experiments; (b) the germination of a large number of seeds, and the way the different seedlings get out of their seed coats; (c) the development of the different flowers, the formation of the fruit and seed of the garden plants; (d) studies of insects, birds, and fungus diseases which are common in every garden; (e) the record of weather conditions which influence the growth of plants, and the use of such instruments as the barometer and thermometer; (f) improvement of the soil by spade work, manuring and draining; (g) how plants are



FIG 2609. SCHOOL GARDENS AT HARTFORD.

constructed and nourished, and the conditions for their healthy growth; (h) the selection of seed in the production of better varieties.

School gardens may also be of great service in the teaching of arithmetic and geometry in a rational manner. For example, such topics as the following come up at every turn: (a) the number of plants required to fill a given space; (b) the garden account, supposing that the seed and mature plant have their value, and that a boy's time is worth something; (c) the comparative cost of two plots treated differently; (d) the calculation of the percentage of sound seeds in a given sample in a germination test; (e) the calculation of losses by insects, and the gains by beneficial birds, frogs, and insects; (f) the laying out of the plots in various forms will bring home to every pupil the

be asked by the pupils during the progress of their garden work which will often stagger the best teacher. Such familiar phenomena as the growth of stems upwards, the roots downwards, and the branches horizontally, will be brought forcibly to the minds of the pupils who will undoubtedly ask for an explanation. What happens when water is poured on dry dusty soil? How does water rise from the saucer to the soil in the pot? How many plants shut up before rain? Why is there no dew under the shade of trees? Why do not the leaves of cabbage become wet with rain? Questions such as these will occur to the mind of the average child who is interested in garden work.

During a recent trip to New England the writer paid a visit to the School of Horticulture at Hartford. This school is under the charge of Prof. Hemenway, and it situated in the country about a mile from the end of the street car line. Arrangements are made with the schools of the city of Hartford whereby the children may take garden work after 4 o'clock and on Saturdays. The experience of the last three years reveals the fact that the children are seldom absent, and that the "street loafers" have become quite industrious boys. It seems to the writer that such could be done in Ontario by the introduction of school gardens such as those at Hartford.

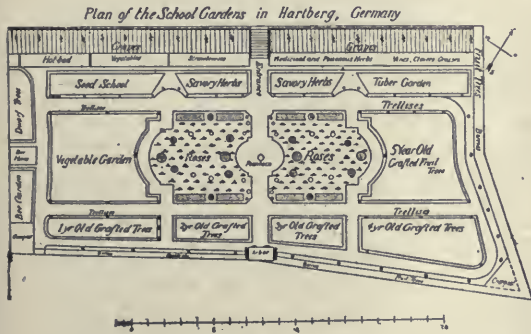


FIG 2610. SCHOOL GARDENS IN HARTBERG, GERMANY.

meaning of straight lines, curved lines, circles, triangles and squares; (g) the construction of these plots to scale; (h) the estimation of the slope of the garden, etc.

In the solution of many of the problems which have been indicated, drawing will come in as essential, especially in the making of diagrams to illustrate important facts in the structure of plants and insects, and in the delineation of beautiful flowers and leaves.

It is wonderful how many questions will

The experience of the Director of the Broadview Boys' Institute in Toronto shows clearly that garden making and garden keeping may be made a potent factor in the education of the boys during their leisure hours. When boys prefer tending their garden plots to witnessing a football match in an adjoining field, it is surely time for the authorities to take action and provide garden grounds where all who will may have plots.

In every town there is usually one or more persons of leisure who could conduct school

garden work along the line of that in Hartford. Not every man who can keep a garden will make a good leader and instructor of boys and girls. That man must be a person whom the boys will respect and obey, for there will of necessity be considerable drudgery work, which the average boy detests, and did not take into consideration when he took up garden work. That man, moreover, must be systematic in his own work and bring about an orderly system of the work in his charge. He must be able to give short talks to the boys both in and out of doors, concise and to the point.

Grounds suitable for work of this kind must be provided at a convenient distance from the homes of the boys. In a matter of this kind there would in most cases be little trouble in finding an area large enough for 50 or 100 small plots each 10 feet by 25 feet.

Then tools must also be provided, but fortunately these are not costly. Each boy should have a set, composed of a garden rake, a garden hoe, a hand weeder, and a line, for which he would be held accountable. A few digging forks and spades should also be at the disposal of the class.

In Hartford the school assembled in a small room, fitted up as a class room, at an appointed hour, received their note books, and copied instructions dictated by the master in charge regarding their day's work. The attendance was recorded by the pupil himself in a special page of his note book. As soon as the early plants began to mature the boys were allowed to take home material from their own pots, but they were required to note in their books the amount of stuff taken.

These gardens were conducted through the entire season, holidays and all. Whenever a boy failed to do his work properly, or refused to obey orders, his plot was given to

another boy, for there were always more boys in Hartford willing to do garden work than there were plots.

In early spring, before the plots could be worked, instruction was given in the greenhouse or plant-house in mixing and sifting soils for potting plants, in planting seed, in potting and repotting plants, and in pricking lettuce and tomato plants.

The rules, which are printed on the inside cover of their note books, are: Each pupil is required to

1. Be regular and punctual in attendance.
2. Keep his garden orderly.
3. Keep his record book correctly.
4. Leave his tools cleaned and hung up before going home.
5. Be courteous to all, and if absent or late furnish excuse from parent or teacher.

It occurs to the writer that now is an opportune time for our Horticultural friends to forward a movement which is undoubtedly a most important one. If the school board will not act immediately it remains for the friends of the movement to take hold of the work themselves and give instruction. Very likely a little money will be required, but this will be forthcoming as soon as the object is placed clearly before the public. There is no more civilizing influence anywhere than that of school gardens, and history tells us that one of the greatest advances in the history of the race occurred when men began the cultivation of plants. He then became a home builder, and gave up his wandering, nomadic habits. One writer of the present day believes that the "tramp" is the product of the tendency cityward, which is so strong in the present age, and is a "reversion" to the primitive habits of our ancestors. The children are crying out for gardens; the home demands a garden; the state should insist upon gardens; and civilization will revert without gardens.



FLORAL NOTES FOR JULY

BY

WM. HUNT,

O. A. C., GUELPH.

STIRRING THE SURFACE SOIL.—The hotter and drier the weather is, the more need there is of surface stirring and tilling the soil around growing plants, in beds or borders. By hoeing or stirring the surface soil to about an inch in depth, a loose earth mulch is formed that is as necessary and beneficial to plant life as overhead watering. In fact, deluging the soil around plants, as is often done by watering them from the nozzle of a hose, is oftentimes almost as harmful as it is beneficial, unless the soil is kept well stirred. Deep tillage is seldom necessary, and is sometimes hurtful, as it disturbs the roots of the plants. Light tillage and frequent is best in summer time, and is best done when the soil is fairly dry. Never hoe or tramp about on the beds or borders when the soil is wet and sticky. Leave the surface rather rough and lumpy, and do not rake it fine.

DAHLIAS.—These beautiful late summer and autumn flowering plants like a moist atmosphere to grow in. Syringe or sprinkle

the foliage every evening in hot weather, if possible. If quality rather than quantity of bloom is wanted, there should be only two or three of the strongest shoots left to grow. All the small weakly shoots should be cut out: If exhibition blooms are wanted only three or four blooms should be allowed to grow on a stem, the small lateral buds should be picked off. Cow manure diluted with water in the proportion of twelve pails of water to one of cow manure well mixed together and allowed to settle before using, makes a splendid fertilizer for dahlias, roses, hardy hydrangeas, or almost any garden plant that requires a stimulant to assist its growth. Once a week will usually be sufficiently frequent to apply this fertilizer. Orange, India rubber plants and palms will also be much benefitted by an application or two of this fertilizer during the summer, more especially if they have not been recently repotted.

CALLA LILIES.—Calla or Arum lilies should be started into growth about the end of July for early winter flowering. If it is

necessary to repot them, now is the best time before active root growth has very much developed. Give them light rich soil and a few pieces of broken pot for drainage. Do not over pot them, as an over large pot induces leaf growth, but few flowers. Good drainage, plenty of water, and a moist warm atmosphere, are the main essentials for success with Callas. Too much soil around the roots is not necessary or desirable when they are grown in pots in the window to secure bloom.

CHRYSA N T H E M U M S.—Pinching the growth of these plants should be discontinued after about the second week in July. The plants should be potted early in August if they have been planted out in the garden; or re-potted into larger pots to flower in if they have hitherto been grown in pots.

PELARGONIUMS.—These plants, that are often known as Lady Washington geraniums, should not be given much water during July. Keep the soil barely moist, so as to dry off and harden the wood, prior to cutting them back, which should be done in August. Pelargoniums should be stood outside during the summer in a partially shaded position. Stand the pots of these and all similar plants on a bed of coal ashes an inch or two thick. This is necessary to keep earth worms out of the bottom of the pots.

GERANIUMS.—Plants of these that have been kept pinched back should be allowed to grow freely after the end of July, but the blooms should be picked off until about the end of August if they are expected to flower well during the winter months. Cuttings of geraniums, salvias, heliotrope, coleus, etc., will strike readily in sand outside in the garden at this season of the year, and will make nice plants before winter. Shade the cuttings during the hottest part of the day, and keep the sand well moist, but not soddened. Old plants of geraniums in pots should be cut well back, allowed to break into growth slightly again, and then be repotted. Old

plants treated in this way will flower well during winter.

LILIES.—Late in July or early in August is usually the best time for planting new clumps of garden lilies, or of transplanting and dividing old clumps of lilies. It should be remembered, however, that lilies of almost all kinds dislike moving or transplanting very often, so that it should only be done when absolutely necessary from overcrowding. Lilies do not like manure placed near their roots when transplanted, a mulch of strawy manure on the surface of the ground around them is much more beneficial than if placed around their roots under the ground.

Lily of the Valley may be transplanted toward the end of August. These should not be planted too deeply. An inch of soil planted over them is generally sufficient. The soil should be patted down fairly firm with a spade after the pips are planted. A light mulch of long strawy manure applied late in the fall will help newly planted clumps of these beautiful little gems of the lily species. They give the best results when planted in a partially shaded situation.

FLOWERING SHRUBS.—Keep the clipping shears off the flowering shrubs. If the loose straggling shoots of these useful lawn decorative plants have not been thinned out when they were in flower, as I have so often recommended (so that they could be used for ornamenting the mantel or dining room table), the pruning should be left until late autumn or early spring so that the growth can be thinned out without clipping the shrubs into unnatural and oftentimes ugly shapes and forms. Clipping flowering shrubs not only leaves the shrubs unnatural and unsightly looking, but it removes about all of the growth that produces blossom the following season.

HYDRANGEAS.—Give hardy lawn Hydrangeas plenty of water at the roots during the hot weather if large showy panicles of bloom are expected in autumn.

IN AN OLD-FASHIONED FLOWER GARDEN.

THERE is always something in the old-fashioned garden that pleases us more than the annual flowers from a greenhouse do. This is largely because of memories which the permanent ones of the garden awaken. Coming to us year after year they bring to us circumstances we are pleased to remember. In early summer and late autumn such gardens are replete with flowers. At midsummer it is not easy to find a good variety to help towards a bouquet. It is therefore with pleasure that I append a list of few good ones which I have just observed flowering in an old-time border of flowers.

My first notes record several bergamots, monardas, as they are called. There are *didyma*, the scarlet; *purpurea*, the purple; *mollis*, pink, and *fistulosa*, lilac, all good for this season for their flowers and their sweet-smelling leaves.

The common perennial phloxes are now in bloom. These, to do their best, need rich ground, moisture and a shady place. With the reverse of this the flowers quickly fade. Some of the newer sorts of phlox are very handsome. Nearly all veronicas are out of flower, but one of the newer ones, *Hendersoni*, is just in its prime. This has spikes of large blue flowers, larger than those of any other one I know of.

The common milkweed, *Asclepias corunti*, is sometimes a nuisance in old meadows, but the lovely yellow-flowered one, *tuberosa*, is one of the most attractive of plants now in flower. Another species, *incarnata*, bearing pinkish-white flowers, helps along the midsummer display. A foreign kind, *curassavica*, with yellowish-orange flowers, is another good one. *Anthemis tinctoria*, is a yellow, daisy-like flower, which blooms from June till September; and if decayed flowers are cut away as fast as they ap-

pear, the new ones continue to come in greater profusion.

Much the same can be said of the two coreopses, *grandiflora* and *lanceolata*. Both are yellow, and bear their flowers on long stems, which is a valuable characteristic where flowers are desired for ornamenting tables when placed in vases.

I saw to-day a whole lot of the lovely large blue larkspur, *Delphinium formosum*, in full bloom. The plants I found had been raised from seeds sown in late fall, in a greenhouse, and had been planted out in spring. This is worth remembering, as if sown in spring there are no flowers until the second summer. Hollyhocks are of the same character. A few will flower when sown in the fall, but it is better to give them two full seasons to get the best results.

The old purple foxglove makes a grand display in the early part of the month. This does best treated as a biennial, though it is something of a perennial. The order to which it belongs contains pentstemons, monkey flowers, snapdragons and many other beautiful and useful hardy plants. As with nearly all perennials, if it can be given a little shade, its flowers are much more satisfactory.

The large-flowered bell-flower, *Campanula grandiflora*, in both white and blue variety, is among the most attractive of all. The two are tall-growing, growing three feet in height, and they bloom profusely. Sometimes one half of a flower will be blue, the other white, making a curious spectacle.

Among day lilies, there is one, *Funkia subcordata*, a very light blue, just going out of flower. In a short time, a very late one, with deep blue flowers, *lancifolia*, will make its display, the last one of the season.

In a quite damp, partly shaded place, double English daisies are now in fine display.

These, I believe, were from seeds sown in early winter. These and common wild English ones, as well as the primrose of that country, will survive ordinary winters here if a slight covering of forest leaves be placed over them.

Another old favorite rarely met with now-a-days is the lavender. It stands both summer and winter well, and as a reward for the space occupied, blooms profusely through the midsummer months.

A large-growing but beautiful perennial

is the *Cassia marilandica*, a species of the native sensitive plants. There are three natives of these plants, but this is the best. The plant grows so bush like that some nurseries catalogue it among their shrubs. It makes a height of three or four feet, bearing clusters of yellow flowers at the end of the shoots. On account of reported medicinal qualities, these plants are called Wild Senna.—*Joseph Meehan in Country Gentleman.*

FLOWERS FOR INVALIDS.

IN our endeavors to make our sick rooms as cheery and attractive as possible, we surely must not leave out the growing plants. The old erroneous idea that they were unhealthful in a sleeping room appears

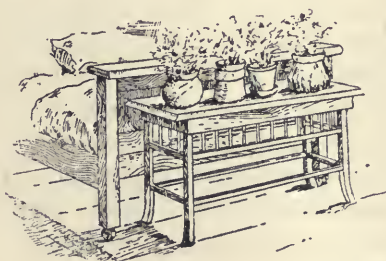


FIG. 2611.

to have faded into the background, much to the good fortune of the sick folks, whose eyes weary for the sight of something green and growing and alive. It is pleasant to

watch the new leaves coming out, and the pleasure partakes of gentle excitement when a flower bud is discovered and watched to maturity. The whole room, too, is so much cosier and more homelike for the presence of a few plants in it. They may be scattered about the room, at the windows or on brackets, but a few at least, should be close to the bed—real *neighbors* to the sick one. The illustration given here suggests a simple, oblong table to hold four or five pots of them. It is very easily manufactured at the home work-bench, and when filled with plants and set at the bed's foot, it cannot fail to give great pleasure and comfort. There should be no ugly pots and jars upon it, but a few choice flowers in choice dishes. Artistic pots are as much a part of the kindly little scheme as the dainty posies themselves.—*American Gardening.*

NATURE'S CALENDAR.—June's delicate robe of green falls upon July a mantle already travel worn. The tender freshness of the leaves is gone. The trees of the roadside are dusty and dejected, dropping now and again a sickly yellow leaf which has suc-

cumbed to the heat and drought. Too hot for flowers, say you? Mark yon bee and the business-like way in which he hums toward the meadow. Full well he knows how many newcomers July brings into the world of flowers.—*Country Life in America.*

SHADY NOOKS FOR SUMMER DAYS

ANYTHING which adds to one's comfort during the warm weather is welcome, and as the life in our climate during the summer months is largely an outdoor one, any bit of shade which Nature or art may provide to temper the rays of the sun is welcomed. The ideas illustrated on this page may all be carried out at slight expense.

The illustration, "A Shady Retreat," suggests places where one may retire with a favorite volume. If the climb into these retreats is too venturesome for the older members of the household, they will afford much enjoyment for the younger ones. Of course the proper trees are necessary, and as no two are alike the carpenter will have to adapt his construction to the enforced requirements of size and growth.

In the arrangement for the shady seat at



FIG. 2612. A SHADY RETREAT.



FIG. 2613. A SHADY SEAT AT THE TENNIS COURT.

the tennis court, rough cedar posts are planted firmly about eight feet apart, three feet below and seven feet above ground, and a framework of built across at the top, and a double seat with back constructed between. The framework at the top should come forward four and a half feet from the end parts on each side, making the top nine feet over all. A series of hoops is carried along one foot apart, giving a curved top. The brackets for this top and the arms and legs of the seat may be made from rough limbs with the bark left on. The same material is used for braces. If gnarled limbs can be obtained for these all the better, but the framework is of secondary importance, as it will be covered with vines by the middle of the summer.

A more simple mode of construction would be to make the top flat. For this use straight pieces instead of hoops. The effect will be less picturesque, but when covered with vines it will make but little difference. If possible face the seats north and south, as more shade will be obtained from the ends when the sun is low in the afternoon.



FIG. 2614. A DOUBLE DOME.

Often shade is needed at some special point on the lawn, and the illustration given of a summer house with a double-domed roof and two circular seats offers suggestions for that purpose.

In the arrangement for this summer house six posts are planted. Of course, the size of these bowers must vary according to individual needs, but they must not rise too high above the ground. They will be useless for shade if carried up more than eight feet.

Centre posts rise to a height of eleven feet, and long hoops are carried diagonally from corner to corner. These are firmly nailed to the centre posts, on which they cross. Straight pieces are carried around horizontally from post to post; these are supported by brackets. The hoops may also be connected by light stuff. A seat is constructed around each centre post, and a light railing runs around the sides. At the base the entrance is generally left free of adornment of any sort.

USEFUL VINES.

Many vines which flower lovers would like to use are worthless for the purpose of

shade. The sweet pea would be a general favorite if it grew to a sufficient height, but it does not. The morning glory and the wild cucumber are both desirable. The former will grow to a height of twenty feet in a season. The wild cucumber also has a rapid growth, and its flowers when seen in masses are very effective; it is to summer plants what the native clematis is to our perennial vines. Some of the ornamental gourds are available for covering summer houses, their large leaves overlap and afford a dense shade, which is, of course, indispensable in a summer house. The variegated Japan hop will answer for the purpose of shade; it has a rapid growth and an attractive foliage.

A SHADED TURNSTILE.

An illustration which needs little description is the one which an old sketching umbrella frame is utilized for the canopy at the top of the centre post, or constructed of a large wooden hoop supported on a wire properly bent. A pot is set on or in the post

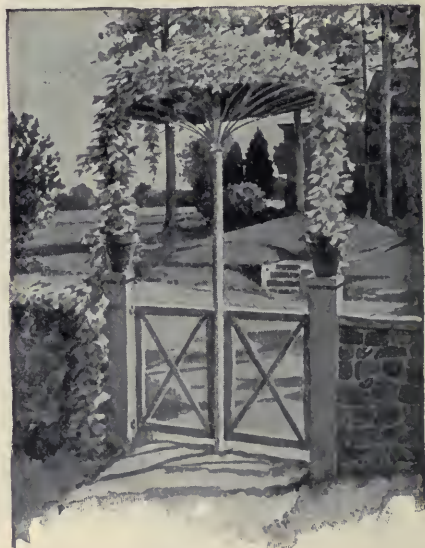


FIG. 2615. A SHADED TURNSTILE.

on each side, and a ladder-like framework of light sticks connects them with the canopy. If desired, wooden boxes may be built in place of the posts. In fact, it would doubtless be a wiser plan to use boxes, as they may be nailed securely to the posts. The centre post must be carried up to a height of seven feet so that it may be passed beneath without chance of brushing the hat of one's tallest guest. Paint in harmony with the house. Nothing will be so pretty or so attractive to plant about this gate as nasturtiums.

THE DOORWAY.

Very often the entrance to a house lacks a canopy or porch in which case the arrangement shown in illustrations shows two



FIG. 2616. A SHADED DOORWAY.



FIG. 2617.
A SHADED
DOORWAY.

light canopy frames, which, when covered with vines, will afford a grateful shade. A feature of one is the shelf for potted plants. Brilliant geraniums are especially effective for the purpose, their glaring blossoms fairly burning against the dark green of the grape vine's broad foliage. When constructing the simpler one, bring the brackets down well toward the base of the door posts. The door way may be flanked with cacti or other plants of a decorative character. For planting a door having a canopy I would advise *Celastrus Scandens* or *Ampelopsis*. The native grape may also be used. All three of the above are attractive and nearly always prove satisfactory.—*Ladies' Home Journal*. Copyrighted by the Curtis Publishing Co., Philadelphia.

THE BACK YARD AS A SUMMER RETREAT

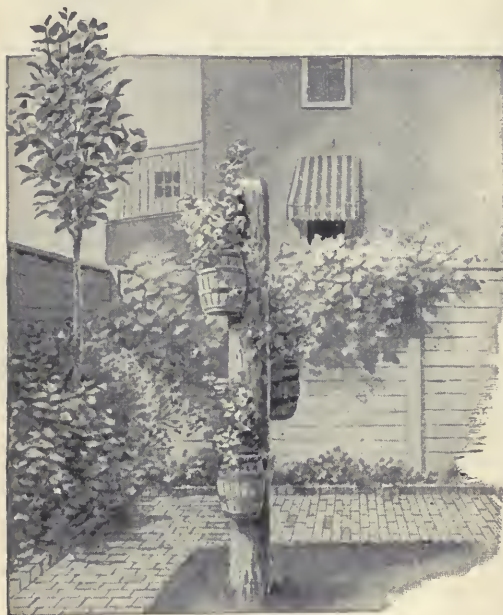


FIG 2618.

THE Englishman realizes the value of flowers in and about his home as a refreshing element. In the city or country the stately mansion or humble cottage is never without its note of color given by potted plants showing at the window or planted in the available space about the dooryard. American city dwellings rarely have more than a few square feet of ground in the rear of the building, but by ingenuity and care much can be done to beautify this little breathing space.

Assuming that a high board fence separates our yard from that of our neighbor, let us consider it the frame for a picture. For a space of two feet from the ground paint the boards dark, quiet green. Above this use a cream, white, or very pale green. This will make a pleasant, harmonious background for the delicate tracery of leaves and flowers growing against the fence. The clothes lines should be fastened to posts set at the outside edge of the walk. If you

have much space plant the posts at the corners, as shown in Fig. 2618. The plot of turf in the centre should not be broken with flower beds. A group of aquatic plants can sometimes be introduced, however, by



FIG 2619.

sinking a half barrel in the ground, as shown in Fig. 2619. But do not attempt to sacrifice this valuable space to flower beds or floral effects of any sort unless you have an abundance of room.



FIG. 2620.



FIG. 2621.

With little expense and the expenditure of time some tree trunks can be obtained from the neighboring country, and used instead of the posts. Use your discretion in sawing off the branches. Pretty rustic effects can be obtained by leaving some of them longer than others. These trees can be located at various points to avoid a set appearance, and will thus add a picturesque feature. A tub containing trailing vines can be placed on top, as shown in Fig. 2620. Brick piers, built at the four corners of the centre plot supporting an overhead trellis (see Fig. 2621) will give a very pretty effect.

When space is very limited the idea suggested in Fig. 2622 is effective. Plant an eight-inch post firmly in the ground at the desired spot. On top affix a large cart wheel, to be bought at any carriage maker's, or make one of strips of board, each one inch thick by two inches wide and of desired length. Nail these on edge to a circular piece of plank at the centre, and tack a stout barrel hoop around the outside rim to secure the ends of the spokes. Nail the circular plank to the top of your post. Surmount the whole with a half barrel in which are planted quick-growing vines, and you will have, in a few weeks, an artificial tree.



FIG. 2622.

series for a gateway. A taller centre post is placed in the middle. Kegs containing vines and plants are placed on the tops



FIG. 2623.

of the posts. Wires are stretched from each to the other and to the centre post, and a very pretty artistic arbor is the result.

A good way to treat the top of a fence is shown in Fig. 2627. Ordinary barrel hoops are bent and nailed to the back of the fence and supported by laths. Boxes of plants are arranged on brackets, or upon the ledge at the back, if permission can be obtained.

Fig. 2624 shows another arbor effect at the rear end of the yard, containing a seat, with pillows which may be covered with water-proof cloth. The assistance of a carpenter may possibly be required to construct this feature, but it is not complicated or expensive, and will furnish a pleasant nook for a siesta.

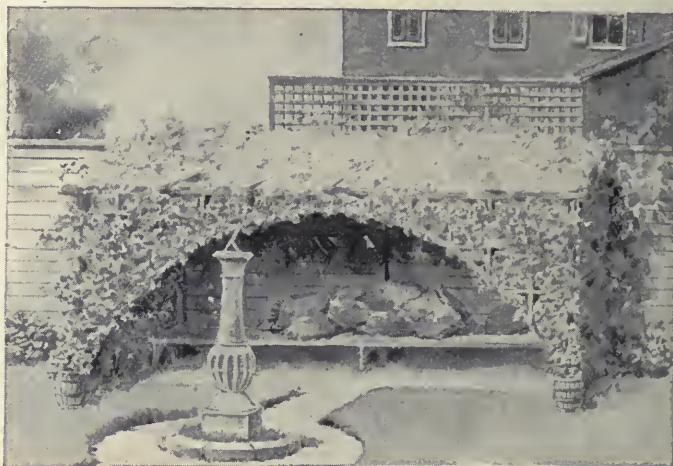


FIG. 2624.



FIG. 2625.

Oftentimes want of space prevents the swinging of a hammock in the yard. A plan is shown in Fig. 2625. Have two brackets or davits made of two-inch gas pipe and bent at the blacksmith's. At the

hanging ends hooks are welded, to which hang the hammock. The pipes are fastened securely by bands of iron screwed fast to the fence. Wires may be strung overhead upon which vines can be trained.

The back portion of the yard, being the least used and the most seen from above, is the place for whatever large beds or shrubbery you wish to use.

By grading from large plants to small even a bed two feet in width against the fence may be made to present a large surface of plants and flowers, while here and there, climbing plants, running up on string trellises, may be carried to the top, and along it ;



FIG. 2626
VINE WREATHED LAMP POST

its velvety gray-green leaves and spikes of yellow flowers contrasting charmingly with more showy plants. These plants make a fine background.

In such a tiny garden it is scarcely practicable to have clipped borders, or any large growing trees; but a clump of shrubbery could be made a feature in place of a flower bed. An unsightly pile of stones may be

(see Fig. 2627) and if you select the plants so that you have early and late flowers, you may by trimming out dead foliage, keep your garden always in bloom; and don't forget the tall, spear-like plants, such as hollyhocks and sunflowers, and even the despised mul-

len of our fields, which in England is grown in great

beauty in gardens,



FIG. 2627.

transformed into a pretty feature by filling the interstices with earth and planting therein the mullein and thistle. Ordinary corn will give the effect of palms, and will grow fairly well if it receives plenty of sunshine. It needs very little water. Even a brick wall may be made to blossom and fruit as well. It is quite a common sight in England to find small fruit trees trained flat up against the sunny side of a house; and all bearing well.

SOME FLOWER LEGENDS

BY

EDWARD TYRRELL, TORONTO.

RUSKIN writes in one of his books, "The greatest thing a human soul ever does in this world is to see something and tell what it saw in a plain way." I suppose if a person reads something and writes of that which he has read in a plain way, he will also be doing some good.

"There's beauty all around our paths, if but our watchful eyes
Can trace it midst familiar things, and through their lowly guise;
We may find it where a hedgerow showers its blossoms o'er our way,
Or a cottage window sparkles forth in the last red light of day."

But we do not stop to look. "Hurry

along" seems to be the ruling motto. Alas! what beauty and opportunities we miss.

Mr. Norman Lockyer tells while on a scientific trip to the Rockies, he met with an aged Abbe and could not help showing his surprise. The Abbe saw that he was surprised to find him there—told him that he had been ill, and that the doctors had given him up. One morning he seemed to faint and had a dream that he was already in the arms of Bon Dieu. "And," said the Abbe, "I fancied one of the angels came and asked me, 'Well, Mons. L' Abbe, how do you like the beautiful world you have just left?' And then it occurred to me that I, who had all my life been preaching about heaven, had seen scarcely anything of the world in which I had been living, and I determined, if Providence spared me, to see something of the world, and here I am."

The subjects I give this month do not need the pictorial illustrations, as every one is familiar with their faces and can call up before the mind's eye the image of them.

IRIS.—The ancients named this plant the attendant of Juno, because its colors are the same as those which the poets and mythological writers have bestowed on the messenger of this goddess. Every quarter of the world possesses the Iris, and excepting the rose, no flower has been more celebrated by the historian and the poet than this genus of plant. The ancients used the Iris, or flag flower, as the symbol of elegance, and on this account it was, we presume, placed by the Egyptians on the brow of the Sphinx, as is to be seen in the collection of antique statuary at the Louvres in Paris, where there are three Sphinxes, all of which have the Iris sculptured on the brow. About the middle of the 12th century, Louis VII

of France, having been excommunicated by the Pope, and his kingdom laid under an interdict, was persuaded to take up the cross and join in the war of the Crusades, on which occasion he distinguished himself by a particular blazon, for which he chose the Iris flower. From that time it was called "Fleur de Louis," Louis' flower, which was soon contracted into "Fleur de Luce," afterwards into "Fleur de Lis," lily flower, although it has no affinity to the lily. This flower soon became celebrated in France, being employed in the decorative embellishments of the crown itself. The Fleur de Lis for a time had a place in the British coat of arms, but on the 1st of January, 1800, it gave place to the Shamrock, which is now united with the rose and thistle.

FUCHSIA, named after Leonard Fuchs, 1501-1565. The fuchsia was known in France early in 1700, but not in England until 1800. It is a native of Mexico, Brazil, Chili, Peru and New Zealand. In some parts of England it is known as "Lady's Ear Drops." A story is told of Mr. Lee, a well known London florist, when he saw for the first time a fuchsia plant in bloom in a window of a small house in Wapping, he was struck with the beauty of the flower, and asked the woman of the house if it were hers, and if she would sell it. She at first refused, as her husband, who was a sailor, had sent it to her from Brazil. He offered her eight guineas, and promised her two of the first plants reared. She agreed, and he kept his promise, and realized three hundred pounds for his other cuttings. This is the advantage of using one's eyes and brains.

HOW TO BUILD A SMALL CONSERVATORY

[We have frequent enquiries regarding the building of small conservatories attached to houses. possibly this plan, which once appeared in *Gardening*, may be useful to some of our readers.]

THE drawings here presented show a small conservatory suitable to be attached to a private house. The dining and drawing rooms of many houses are about 15 feet wide, have a chimney in the center with windows on either side of same. This conservatory, erected in conjunction with either of these rooms, would be an artistic and serviceable addition. The windows could be altered to doorways with or without doors as desired. A foundation built of the same material as that of the dwelling, with stone footings carried below the frost line, should be prepared for the conservatory, or if this be too expensive, locust posts could be used instead. If posts are used the tops must be squared, and the proper angle given to those which form the corner of the octagon. German siding could be nailed to posts, the board at the grade line extending below the level two or three inches.

By consulting the scale details in conjunction with the following description you will, we think, understand the method employed in the construction of this building.

A sill 2 inches by 6 caps the foundations and should be laid in a thin bed of cement. Floor beams 2 by 10 inches, secured to the sill and supported at the house on a 2 x 4 secured to dwelling, should be laid the 11-foot way of conservatory. A plate 2 x 4 inches is next fastened to the top of the floor beams, following the outlines of conservatory same as sill. To this plate the rafter feet are secured by cast iron lugs bolted to the plate and rafter feet. It will be noticed that this plate extends outside of the conservatory, forming a cap for the base, and constructed in such a way that it is impossi-

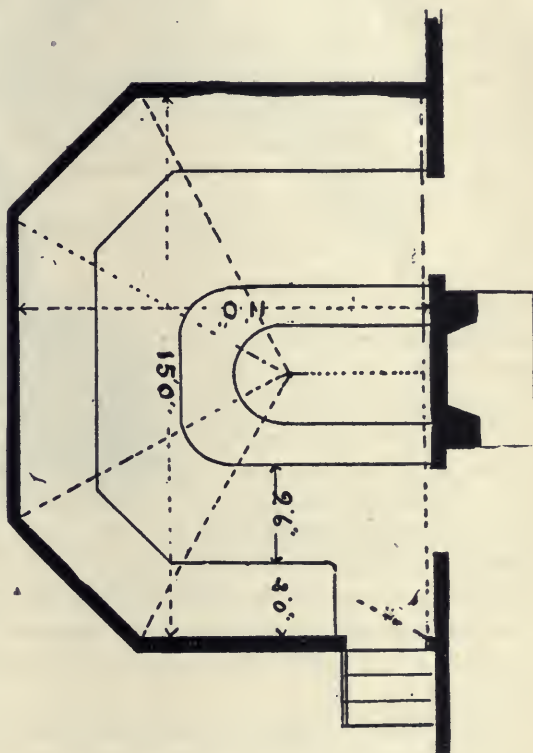


FIG. 2628. GROUND PLAN.

ble for water to find its way into the joints. The height of the sides, as well as the length of the rafters can only be determined by the room available, position of the windows in the second story, etc. This must all be carefully noted before operations are commenced, and a large scale or full-sized drawing made to determine these points. The rafter feet and rafters are joined together with a wooden bracket, as shown, and securely bolted to each. The elevations and dotted lines on plan show the number and position of the rafters. Where the rafters join at the ridge they should be secured to the same with iron straps.

The sides of the conservatory from the top of the floor to the height of 2 feet 6 inches are panels running between rafters and secured to the same. A sash sill caps the panels, and above this are the side sash $1\frac{3}{4}$ inches thick, hinged at the top to fascia and provided with iron straps to open them. The fascia, $1\frac{7}{8}$ inches thick, runs from rafter to rafter in one continuous piece. The rafter feet should be cut away where the fascia strikes them so that the face of the rafter foot and fascia are on the same plane. The gutter is constructed in two pieces lined with tin and supported by brackets as shown. Care must be taken that the tin laps over the outside face of the gutter and extends close to the fascia cap, as otherwise water will surely find its way into the conservatory. The roof is formed by rafters and sash bars, the bars being gained into the fascia cap and mitred against the rafters. The position of these can be readily seen on elevations.

Either side of the short ridge are small sash for ventilation hung to the ridge, and are intended to open by means of ventilat-

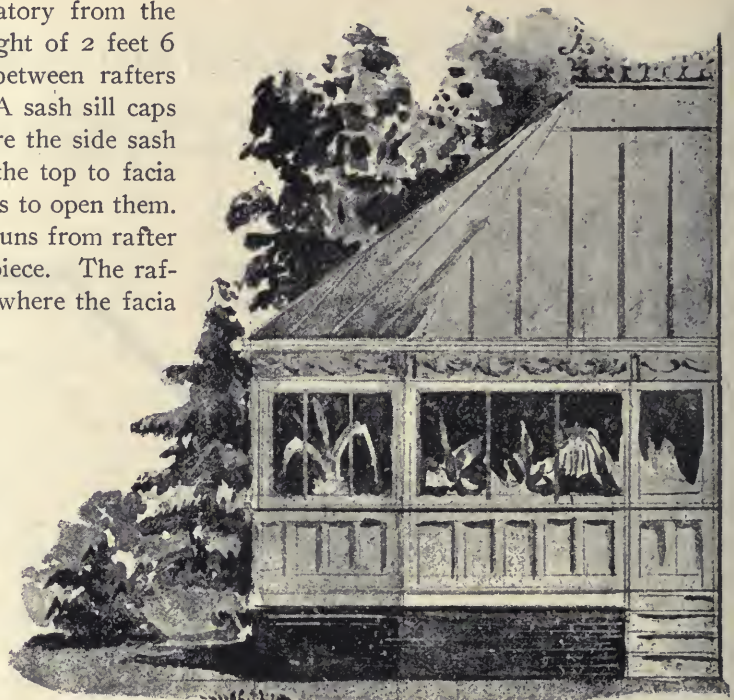


FIG 2629. SIDE ELEVATION.

ing machinery, which can be procured for a small sum, of dealers in the same.

The tables can be built of wood. They should be strong and substantial, with a band on the front projecting about two inches above the table.

A FERN THAT WALKS.—Most ferns are confirmed travelers. New fern leaves grow out from the underground roots some distance away from the old plant. The average observer scarcely notices this, but there is a native fern that steps off at so lively a pace that its odd habit has long furnished one of the unceasing entertainments of the woods. The walking fern often carpets ledges and tops of shaded rocks. The slender, tufted leaf fronds are singularly unfernlike in appearance. They squirm about and "walk" by declining their taper tips to the soil and

taking root there and growing. In time, clusters of new leaf fronds spring from such rooted tips. By-and-by some of these, too, bite the earth and, taking root, start still other colonies, which in turn will continue the progress again and again. Naturally, with the lapse of time, the connection between the older tufts and the younger becomes broken, yet one sometimes finds series of three or four linked together, representing as many steps in the pretty ramble.—*Country Life in America.*



The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

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OUR HORTICULTURAL SOCIETIES

BY

T. H. RACE, MITCHELL.

I INTIMATED in the May number of the Horticulturist that I would refer again to this subject during the summer months. I merely intimated then that the object of the horticultural societies was not to distribute seed potatoes, nor to do any work properly belonging to the agricultural societies. On the contrary, the horticultural societies are to do for the home and its surroundings what the agricultural societies have done for the farm and the dairy. They are intended to do more. Their purpose is to beautify the home and make it more attractive; to purify and cultivate the

æsthetic in home life by the aid and influence of nature's gifts, and thereby promote a greater love of home, a deeper love of country, and a higher conception of life.

We have as an inheritance a rich and a beautiful land, the basis of its prosperity being the agricultural interests. For the development of these interests the agricultural societies have done much. But the improvement of the home and the cultivation of the æsthetic art have scarcely kept pace with the higher methods of cultivation and general progress upon the farm. Having recognized this fact, the horticultural

societies have taken up the neglected work of making the home more attractive.

Horace Greeley, in his admirable essay on farm life, says that the best investment a farmer can make for his family is that which surrounds their youth with the rational delights of a beautiful and attractive home. This is as true of the town and city home as of the rural home. Whatever the conditions or larger environments, there is no spot that so deeply concerns the welfare of mankind as the home. Where the child is nurtured there the foundation of his character is laid; and upon the influences of early home life depends largely the character of the manhood and womanhood we are producing. And upon that character depends the character of the nation or country. A country is just what the people make it, with the advantages they possess. Canada is to-day just what we make it. In another generation it will be whatever our children make it. What they may be then depends largely on the influences we throw about them now in their home life.

The work of the horticultural societies is the education of the æsthetic side of life, the development and culture of the finest instincts in our being. Why do our children love flowers? Why do they delight to go to the valleys and to the mountain sides to gather wild flowers? The love of flowers in the child is an instinct as inherent and as clearly defined as the instinct of worship. It is a tenet of Eden in perpetuity, as our poet puts it, and it seeks gratification in the valleys and woodlands to-day as it found it in its Eden surroundings at the dawn of creation. The religious instinct of the child is developed by bringing him into contact with his creator and under the influence of His divine will. His love of nature is developed by bringing him into contact with nature, and under the influence of her visible forms. We cannot get too close to na-

ture ourselves, nor can our children be brought too near to nature's most refining influences in their earlier years. They go to the woods to gather flowers with as true an instinct as they go to the cupboard to gratify their hunger. The purpose of the horticultural societies is to bring that gratification to them. Every flower about the home has its influence upon child life. Wordsworth says in every flower, Tennyson says in every shapely tree, and Emerson says in every running brook there is companionship for man. We may not have the running brook, but we can all have the flowers and the shapely trees, with all their adjuncts in shrubbery and grassy lawn.

We cannot make home too attractive. Horace Greeley has again said that no expenditure pays a man better than that which makes his family fond and proud of their home. The highest order of patriotism to be found among mankind is that which felt its first impulses in the love of home. Teach a child to love his home by making it attractive, and he will grow up to love his country. This should be the aim of every horticultural society, to make a Canadian patriot of every Canadian child. Love of nature; love of home; love of country; love of God. And yet I found a few societies during my tour in the spring investing their means in seed potatoes and giving prizes for farm and garden truck, with not a thought of their homes, their village streets, their school grounds, or even their front fences. What wonder that some of our members at different points went out on strike!

THE ORILLIA HORTICULTURAL SOCIETY.

The Orillia Times says: The record of the Orillia Horticultural Society, as given by Mr. Stephens in connection with the meeting held at Mayor McCosh's last week, affords full justification for its continued existence. It has been doing, in a quiet

way, for several years, work somewhat similar to that which has of late years been so energetically taken up by the Board of Trade. Through the work of the society, the name of Orillia has been brought to the notice of all the fruit growing and Horticultural authorities in Canada and the neighboring republic, in a most favorable manner; and if there be in Orillia one organiza-

tion more than another which deserves the kindly sympathy and co-operation of our citizens, that organization is the Orillia Horticultural Society. Much of the success of the society, in the directions mentioned, is due to the unostentatious and untiring services of Mr. C. L. Stephens, who has been secretary of the society since its organization, and is this year its president.

Question Drawer

WHITE GRUBS IN MANURE, AND SOME GRAPE INSECTS.

SIR,—I would like very much to hear through the Horticulturist your opinion in reference to destroying the white grub which infests manure piles at this season of the year. My experience is that manure so infested is unsafe to use both for vegetables and young trees newly planted. I have had the young fibres entirely destroyed on newly planted trees by mulching with manure in a dry season like the present. The grub leaves the manure, burrows to the roots of the tree, and eats the fine fibres just as they start and finely the tree dies.

I send herewith two kinds of insects which I have on grape vines. Before the blossoms unfold the entire bunch is stript, leaving nothing but the stem but I fail to find the insect which is destroying the grapes in this way. Any information through the Horticulturist will be gladly received.

Stoney Creek.

W. C. WEBSTER.

Answered by Prof. Lochhead, O. A. C., Guelph:

Without seeing the actual specimens of white grubs which Mr. Webster finds in the manure, I venture to think that they are not forms which are injurious. It is quite likely that they are the grubs of dung beetles, and not the white grubs which do injury by eating the roots of plants. Of course it is possible that if there is much unrotted matter in the manure there may be some of the root-eating grubs either hibernating in comfortable quarters or feeding on the vegetable matter. We do not know enough about many of these forms to make definite statements, for they are diffi-

cult of study. We would be glad to hear from other orchardists on this point, and have their experience.

The cream colored caterpillars found eating the leaves of the grape are those of the Yellow Woolly Bear (*Spilosoma Virginica*). The moth of this insect is known as the "white miller," and appears in early May, when eggs are deposited on the under side of the leaf in clusters. For a time the young caterpillars are gregarious, but later they feed singly. Fortunately for us, these insects are killed in large numbers by parasites. When numerous, in spite of the parasites, they may be readily killed by the combination Bordeaux and Paris green mixture, which is so well known.

The beetle, which was also found on the grape in company with the caterpillars, is one of the ground beetles, and is beneficial, as it kills caterpillars and grubs of many kinds.

TOP DRESSING FOR LAWNS.

SIR,—Will you kindly inform me what you recommend as a manure or top dressing for lawns of grass and clover mixed and if land plaster is beneficial to grass, as distinct from clover and oblige.

St. Marys.

C. FREEMAN.

Answered by Prof. H. L. Hutt, O. A. C., Guelph:

As a general fertilizer for lawns there is nothing better or cheaper than a top dressing of well rotted barnyard manure. Our practice on the lawns at the College is to apply this after the ground freezes hard in the fall, or at any time in the winter when the snow is not too deep. The soluble portion of the manure is washed into the ground with the melting of the snow and the early spring rains, and stimulates an early and luxuriant growth. When the lawn is dry enough to rake in the spring the coarsest of the manure is raked off. The finer parts are thus worked in around the grass roots.

BLACK MEDICK.

SIR,—I enclose a plant growing in our meadows which looks something like Sweet Clover but is much smaller, the bloom is yellow. Is it of any commercial value or is it a dangerous weed. We anxiously await reply through the Horticulturist.
Port Dover. J. E. ANDERSON.

Answered by Prof. H. L. Hutt, O. A. C., Guelph:

The plant in question is Black Medick, sometimes called yellow clover, and botanically known as *Medicago lupulina*. It grows freely in meadows, lawns and waste places, and in none of these cases may it be looked upon as a weed. A weed has aptly been defined as a plant out of place: This plant, or any other, in a strawberry patch, might justly be looked upon as a weed, but on the lawn it forms a thick green mat, and in a pasture field affords good pasture, but it is too short to yield much hay unless supported by other taller growing clovers or grasses.

A CORRECTION.

EXPERIMENTS IN THINNING FRUIT AT THE AGRICULTURAL EXPERIMENT STATION, GENEVA, N. Y.

The comments on the experiments in thinning fruit, which have been conducted

at the Experiment Station at Geneva, N. Y., published in the June number of the Horticulturist, do not present correctly the conclusions which one must accept after studying these experiments. It is not necessary now to inquire whether I have reported them incorrectly or whether my statements have been incorrectly reported. The important thing is to present the right conclusion to the readers of the Horticulturist.

The experiments referred to were begun in 1896 and continued for several years thereafter. The object was to include enough trees under experiment so that the work might be conducted as a commercial proposition. The same trees had the fruit thinned year after year, while corresponding trees were left unthinned during the same period. Work was done upon apples, apricots, plums and peaches.

Taking all the experiments into consideration, both with stone fruits and with apples, the effect of thinning was seldom shown to any considerable extent in the character of the yield the following year upon the same trees. In many instances there was apparent some permanent advantage as a result of the thinning, but in many other instances no such advantage was apparent. This leads us to conclude that for trees which have reached mature bearing condition, and which are well fed and in all respects well cared for, the effect which thinning the fruit may have upon the productiveness of the tree in succeeding seasons has not been sufficiently great in these experiments to permit us to look for very much profit in that direction from thinning fruit. In this work the profit from thinning fruit, when there has been any, has for the most part come from the superior size and quality of the fruit of the current season. I wish to call particular attention to the qualification made in the previous statement as to the kind of tree under consideration. There can be no

doubt that young trees may be seriously impaired in vigor as a result of maturing too heavy a load of fruit. Mature trees may be so overburdened with fruit that the weight of the crop causes large branches to split off, thereby doing permanent injury to the tree. In these ways, and in some others, thinning fruit when the tree is overburdened may result in permanent advantage to the tree, but I am firmly of the opinion that there is a widespread popular misapprehension as to the amount of increase in succeeding crops which may reasonably be expected to follow the thinning of fruit on mature trees which are in good condition. As previously stated, in our experiments in thinning fruit, in many cases there has been in succeeding years no apparent increase of the crop, and in other cases the increase has not been very marked as compared with the crops on corresponding trees where no thinning had been done.

Geneva, N. Y.

S. A. BEACH.

BRODIAEAS.

BRODIAEAS are not as well known as they deserve to be, many flower-growers who yearly plant hyacinths, tulips and other winter-blooming bulbs, being entirely ignorant of their charm and beauty. These bulbous plants are natives of Califor-

nia, and are very widely distributed. All the varieties are very pretty. *B. Laxa*, with umbels of delicate lavender flowers, contrasts charmingly with *B. coccinea* (the floral firecracker), with its beautiful fuchsia-like flower of bright cardinal tipped with green and white. *Brodiaeas* have all very long stems, but *B. volubilis* (or, as it is often called, Twining Hyacinth) is quite a curiosity in this respect. Even if given a support six feet tall, the blossom stock will continue twining round and round till it reaches the top. It has broad, luxuriant green leaves, and when the delicate stem starts it is tipped with a tiny bud, which at last develops into a cluster of pretty pink flowers. Plant two or three pots of these charming flowers for winter-blooming, and the results will surprise and delight you, if you are not already old acquaintances.—*Parks Floral Magazine*.

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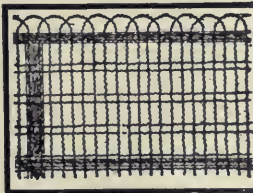
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FIG. 2630. LINDLEY.

THE CANADIAN HORTICULTURIST

AUGUST, 1903

VOLUME XXVI



NUMBER 8

LINDLEY

A FEW years ago the Lindley, or Roger's No. 9, was a favorite red grape with vineyardists, and it was planted quite freely in commercial vineyards. It was also a favorite for the dessert table, for its quality is excellent and its pretty and peculiar red color shows up its bunches finely in the dessert dish, along with Niagara and Concord, making a display of our emblematic colors, the red, white and blue.

In some instances vineyards of Lindley have yielded splendid crops, amounting in one case to an average of about thirty pounds to the vine; but it was not long before the variety began to fail in productiveness and become unprofitable. Perhaps this failure was due to the thrip, which is very troublesome on vines of the Lindley, for they weaken them by sucking the sap from the leaves. Anyway, whatever may be the reason, we find that of late years our Lindleys never give a good yield of fruit, and it is very difficult to select out bunches that are really perfect. We cannot, therefore, recommend the Lindley as a market variety, and, since it is scarcely the equal of the Delaware in quality, it cannot displace that excellent little grape for the dessert table.

Perhaps if we could succeed in destroying the thrip this grape might recover the place

it held when President Wilder, of the celebrated Massachusetts Horticultural Society, denominated it and Jefferson "the Muscats of America," and when in the Bushberg catalogue it was recommended as a "fine table grape, one of the best of the red hybrids."

It was on the encouragement given by such favorable statements that about ten years ago we planted a vineyard of Lindleys at Maplehurst, but every year they have been growing less satisfactory, until now we expect soon to be obliged to root them out, for they are only a breeding place of thrips, which swarm over to the other varieties.

Lindley is an excellent keeping grape, holding its rich flavor in ordinary storage, well on into the winter, and in a dry atmosphere it turns almost to a raisin.

There is a grape called Mary in our collection which very closely resembles Lindley, so closely indeed that experts are puzzled to decide whether it is really distinct or not. We notice, however, that it is a better grower, that the bunches are more compact, and, if anything, brighter in color. Perhaps it may prove better able to resist the vexatious thrip than the Lindley, and, if so, it will establish its distinct identity.

Editorial Notes and Comments

TOP BUDDING.

GRAFTING has usually been looked upon by the farmer and fruit grower as the only method by which the top of a tree might be changed to some other variety. The operation of budding, which is really grafting with a single but instead of a scion with two or three buds may, however, be practised in almost every case with as much success as grafting. Grafting is best done early in the spring, at which time there is often such a rush of other work that it has to be put off and is then neglected. Budding is done during the summer, when it is usually more convenient to get time for doing it.

The practice of budding is particularly adapted to the top working of young trees when the main branches are not more than an inch or so in diameter, for the buds may be inserted on branches of this size, and the wound made when the branch is removed heals over readily. Detailed directions for budding may be found elsewhere in this number.

A WARNING TO FRUIT GROWERS.

THE Fruit Division of the Department of Agriculture, Ottawa, issued the following warning to fruit growers about the last of June: It is to be feared that the wet weather at present prevailing will lead a good many orchardists to neglect spraying. Last year the summer and autumn were wet, and many growers of fruit failed to give their orchards more than two or three sprayings. Cool moist weather is peculiarly favorable to the development of fungous growths, and it is only by seizing every opportunity and spraying whenever a day or two of dry weather comes along that sound clean fruit can be secured. Wet weather should be an incentive to greater diligence

in spraying, rather than an excuse for not spraying. Eternal vigilance is the price of safety in fruit growing, and it behooves every one who desires a full crop of first-class fruit to spray early and often.

ORCHARD CULTIVATION.

THERE is a danger that on account of the wet weather orchards will not receive their usual cultivation, which is urgently needed to destroy weeds, aerate the soil, and conserve soil moisture for future use. If the ground is not stirred it bakes, cracks open, and evaporation goes on rapidly. By stirring the soil through frequent cultivation, thus keeping a loose mulch on the surface, capillarity is broken up and moisture retained. As soon as it is possible, therefore, to get on the ground after a rain, the cultivator should be started in the orchard and kept going as steadily as time and weather will permit.

FRUIT PROSPECTS.

THE following is a summary of the crop report, as obtained by the Fruit Division of the Dominion Department of Agriculture: Early apples are reported a good crop in all sections. Winter apples will be only medium. The fruit has been singularly free from the ravages of insects and fungous diseases, though a few correspondents are noting the development of some scab since the wet weather has set in. The fruit division a few days ago issued a timely warning that spraying with the Bordeaux mixture would be doubly necessary as long as the wet weather continued.

Pears in Southern Ontario and Georgian Bay districts are a good crop. In Eastern Ontario they are a failure in many places.

Plums are a heavy crop in all the plum growing sections, but the rot is developing

with the wet weather, and will, if it continues, cause a serious depreciation.

Peaches are also a large crop. Mr. J. L. Hilborn, of Leamington, says: "Peaches of all varieties except those subject to curl leaf are heavily loaded. The Elberta, a variety much subject to curl, has suffered very little where it was sprayed early, but where spraying was done late or not at all many of the trees will probably die."

Small fruits are a heavy crop everywhere except in the eastern portion of the province, where the drought is responsible for the failure.

THE "KING" APPLE.

THE "King" is one of the favorite varieties in the market, but unfortunately it is so shy a bearer on its own roots that it is not at all profitable. It has, however, frequently been noted that by top-grafting it on any vigorous stock it becomes much more prolific.

The Fruit Division, Ottawa, invited correspondence upon this subject, and has received some valuable information. Mr. C. L. Stephens, of Orillia, has the King top-grafted on Duchess, and finds that its bearing qualities are quite satisfactory. Mr. Wm. Read, of Jarrat's Corners, has twelve King trees grafted on Duchess, and reports equally good results. Mr. Judson Harris, of Ingersoll, has an orchard of two and a half acres, the crop from which the past eight years has never brought him less than \$500. Many of these trees are Kings grafted on Russets. Mr. Robert Murray, of Avening, has a number of King trees on their own roots and others grafted on Tolman Sweets, and notes that the top grafted trees are the only ones that give him paying crops.

The experience of these growers and many others goes to show that it would be a very profitable piece of business to top-graft at least some of the early apples to be found all

over Ontario with Kings. The King is an apple that exactly fills the bill as a fancy market variety, as it is of excellent quality, color and size, and well known in the English market. If its only defect, want of productiveness, can be cured by the simple method of top-grafting, it should prove a boon to many people who have vigorous trees of undesirable varieties.

THE GIFT PACKAGE FOR GRAPES.

OUR readers, who have been hoping to see a market in Great Britain for Canadian grapes, may be interested in a view of the interior of a salesroom in Covent Garden, London, England. These old wicker baskets, which have been in use from time immemorial in that country, may look clumsy to us, but owing to their great strength they endure shipments for years, thus avoiding that most serious annual expenditure for baskets, which bids fair to keep the Canadian fruit grower poor. Once when fruit prices were high, the gift package came into use, and was looked upon as a saving of trouble; and so it was, but can we afford the luxury? Very often the money we fruit growers pay the basket maker exceeds our own share of the proceeds of our fruit crop. Indeed, the basket bill of many a fruit grower in the Niagara district reaches \$1,000 in a single season. Is it not time to call a halt and ask ourselves whether, after all, this old world conservative custom of using such fine strong baskets, as are shown in the illustration, is not worthy of introduction into Canada. Such baskets would last for generations, and are returned free by the carrying companies, so that when once a stock is secured the basket expense is over.

Of course in this we refer only to home markets; for it would be almost impracticable to have export packages returned, even if they were so made that they could be nested.



FIG. 2631. A. FRUIT SALESROOM IN COVENT GARDEN, LONDON.

The illustration is furnished by Mr. W. A. McKinnon, chief of our fruit department at Ottawa, who calls attention to the "packages in which grapes are sold with bloom undisturbed," and also to the packages of peaches and melons.

WESTERN MARKET FOR SUMMER FRUITS.

THAT a northwestern trade for Southern Ontario fruit will develop a hundred fold in the near future, owing to the rapid settlement of northern Ontario, Manitoba, and the Northwest, there is no manner of doubt. Southern Ontario will send to the latter points, not merely advance supplies of early fruits, but in a large measure will contribute the whole supply. The

northerly limit for many of the early and tenderer fruits, as well as for some later and hardier varieties, is found somewhere in old Ontario. The very low winter temperatures of the northern points enfeeble, if they do not kill, fruit trees, vines, and bushes, while the comparative shortness of the season that is free from frost adds to the difficulty of producing fruit on a large or profitable scale. Berries, grapes, peaches and apples are demanded in the west now in large quantities, and as settlement continues and wealth increases the market will widen more and more. The Ontario fruit grower will do well to look to the northwestern market.

Winnipeg should be a great shipping centre for Ontario fruits of all kinds. Strawberries are sold there by a commission firm at 18 cents a box. These berries come, we are informed, from Oregon. Berries from Ontario could be sold in Winnipeg with handsome profit at 10 cents a box. But before this can be done an opening must be made in the market against the active opposition of the aforementioned commission firm, a proper car must be found to carry the

berries thither, and the railway companies must be induced to build and to use this car.

What is true of berries is true of most other Ontario fruits; there should be an ever-increasing market in the west. Co-operation and patience in establishing the market, a little experimenting on cars for shipping, and a deal of suasion towards the railway companies, are necessary to the accomplishment of this important object.

FRUIT TRADE WITH THE WEST IN A CRITICAL CONDITION.

THE Fruit Division, Ottawa, gives out the following statement: Numerous requests have been received from Manitoba and the Northwest Territories for Ontario fruit of the best quality, put up in neat and attractive packages of the sort that western dealers prefer to handle. There are immense possibilities in this western trade for the Ontario fruit growers, but up-to-date methods of packing and shipping will have to be adopted at once, or the whole of this great and growing business will be captured by the Americans.

Fruit Inspector Philp, of Winnipeg, writes that matters have come to a critical stage, and that unless Ontario now makes a determined bid for the trade the market will be occupied almost exclusively by fruit from California, Oregon and British Columbia. In the case of apples, even Kansas and Missouri are likely to be strong competitors. According to Mr. Philp, the packages wanted in the Winnipeg market are the following: Early apples, the bushel box; pears, the half box, holding twenty pounds of wrapped fruit; peaches and plums, the crate holding four boxes, similar to those used by California shippers, and which are well known in all Canadian markets.

It is very important that Ontario shippers should realize the critical stage at which this trade has arrived, and that they should make a united effort to capture the western market, not only by perfecting the details of their own end of the business, but by taking up the matter of transportation with the express and railway companies in order to secure if possible a better and quicker service to Winnipeg. At present fruit is frequently forwarded by express from Toronto to Winnipeg via Smith's Falls, and even via Montreal, to connect with the through trains. The result is that the fruit is on the road from 18 to 24 hours longer than it would be if sent via North Bay, and consequently it does not arrive in Winnipeg in the best condition. If the carrying companies can be convinced that Ontario growers are prepared to maintain a steady shipment of fruit in modern packages, and not merely to send west the fruit that the east does not want, put up in all sorts of antiquated shapes, there is little doubt that adequate service will be provided at a rate which will compare favorably with that now enjoyed by Oregon and California shippers.

FRUIT PACKAGES

THE box is fast coming into popular favor as a suitable package for shipping apples in, as well as pears, and many shippers say that the barrel will soon be a thing of the past. However, it will be some time yet before the barrel will be entirely superseded. There are several points in favor of the box, and it is, undoubtedly, by far the best package for early and tender fruit; there is less bulk of the fruit together, and it is, therefore, much easier to keep it at a cool, even temperature. It has plenty of ventilation; there is not so much pressure necessary to keep it tight; it is a handy package to handle; it is square in shape, and utilizes the space on cars or on vessels to better advantage. If to be shipped in cold storage, the fruit can be cooled down to the necessary point very quickly, but it takes a long time to get a barrel cooled to the center. In price, there is little difference between the box and the barrel. The raw material has risen in price, so that a good barrel will cost about 35 cents laid down; what is called the bushel box is laid down for about 12 cents, or 12½ cents. It takes three boxes to the barrel, so it will be seen that the difference in cost is very slight.

It is claimed that nothing but the very choicest fruit should be shipped in boxes, so that the fact of the fruit being in boxes would mean that it was of the very best quality, and that no second grade should be boxed. In British Columbia they use boxes almost entirely for shipping their fruit, and their second grade is shipped in boxes as well as the first, and where no barrels are used this must certainly be done, and it is hard to see how it can be avoided, or just why it should not be done, providing it is properly marked and branded as required by law.

There is as yet no standard fixed as to the size the box should be, and any and every kind and size is being used. Some use the bushel box, so called, holding about one-third of a barrel; others use what is called the 40-lb. box, holding about one-quarter of a barrel, and for extra fancy stuff, especially pears, which are wrapped in paper, a much smaller package, containing only about two or three dozen fruits. There is a difference of opinion among growers and shippers as to whether there should be a standard fixed, or whether everyone should continue to use the size that suited them best. In the St. Lawrence valley, in the neighborhood of Montreal, they are using what is called the Cochrane case, which is fitted with pasteboard squares like an egg case. These are used for choice specimens of Wealthy and Fameuse, and it has been highly profitable. The fruit must be of uniform size to fit the squares, and this matter of uniformity in size should be a cardinal point in packing fruit in all kinds of packages. It need not all be large, but the large specimens should be put together. A smaller size can be put up, in which the only difference will be in the size. In all other respects these should be as good as the first, clean and well colored; and these will often—in fact, in most cases—bring as much money in the British market as the larger ones; but good judgment must be used in the grading, as to uniformity, cleanliness and color.

The question of packages for fruit was discussed at the last annual meeting of the Ontario Fruit Growers' Association, at Walkerton, but there was such a diversity of opinion as to which was the best size of box to use, that no definite conclusion was arrived at.

However, the matter will come up again,

and if it is necessary to have a standard size for the barrel, and the size of the basket is fixed by statute, then we must have some definite standard for the box as well. They must be of different sizes like the baskets, so

as to have a small package for very choice fruit for export, but buyers will want to know when they buy a box of fruit what it should contain.—*Farmers' Advocate*.

OUR ASSOCIATION AND THE FALL FAIRS.

IN his published address Mr. G. C. Creelman, the superintendent, made the following remarks touching on the way in which our work may help to make the fall fairs of our province a greater success than they have been hitherto:

I believe that the Fruit Growers' Association can materially assist the fairs. We are now making arrangements whereby there will be an active local Fruit Growers' Association in every part of the province. The Ontario Fruit Growers' Association has done splendid work up to this time, but now the time has arrived when they must extend their yearly meetings into a series of meetings, in which the individual farmers may take part. The local Fruit Growers' Association should be asked to consult with the Fair board, and to revise the prize list so far as fruit is concerned.

First: Then we can go a step further and secure the co-operation of the Fruit Experiment Stations. If these stations are any good at all, they must have demonstrated to a large extent at least what is best in the way of fruit for the localities in which they are located. These stations are receiving government money, and their object is to assist those interested in horticultural matters. Are you making enough use of them? Are

you asking the superintendent of the station to co-operate with your board? Take the information he has to give and make use of it. If he will not give it, I as secretary of the Fruit Growers' Association will undertake to see that he does give it. But I have no hesitation in saying that these men are anxious to help the farmers in their vicinity. Each secretary should write to the director of the Fruit Experiment Station for his district and ask him what varieties he would recommend for the prize list, or what varieties should be cut out.

Second: The local horticultural societies ought also to assist materially. Give them a place in your main building for the exhibition of hardy varieties of plants, shrubs and flowers. They ought to be asked to have their officers there at certain hours during the fair, to explain how these plants and flowers have been produced, the mode of growing them, etc. An opportunity should be given to ask how to grow this or that. To-day people are discouraged by seeing exhibits so far superior to their own plants and flowers, because they do not know how to produce them. Let us take the other associations into our confidence; they are only waiting to be asked.



FIG. 2632. JAMES FLETCHER, F. R. S. C., L. L. D.

AMONG the most acceptable and most effective agricultural convention speakers is our friend, Dr. James Fletcher, of Ottawa, entomologist for the Dominion Experimental Farms. His name appears frequently on the programs for dairy conventions, live stock meetings, the Ontario Fruit Growers' Association, and the Ontario Entomological Society annual meetings. The school teachers' conventions and will welcome him. Just now he is on his

annual official visit to Manitoba, the Northwest and British Columbia, and we take advantage of his absence to give our readers a sight of his genial face, and a note or two as to his work. Dr. Fletcher is not fond of keeping his personal affairs before the public, and so we will have to be content with but a brief note as to his career.

Dr. Fletcher was born in England, but has lived in Canada for so many years that his attachments to this country have become

thoroughly established. He has great faith in Canada, and is giving his whole energy and thought to assist the farmers of Canada in developing our unlimited resources. For some years after coming to Canada he was attached to the parliamentary library at Ottawa. At the same time he continued his studies of insects, and soon became one of the live working members of the Ontario Entomological Society. To Dr. Fletcher and to Dr. Bethune the society owes a great deal, for they have, year in and year out, kept up the interest and maintained the continuity of its existence.

When Sir John Carling established the system of Dominion farms in 1886, he selected an ex-president and active member of the Ontario Fruit Growers' Association as director, and he also appointed the most active member of the Ontario Entomological Society, Mr. James Fletcher, as Dominion Entomologist. A few years ago Queen's University, Kingston, conferred upon these two gentlemen the degree of Doctor of Laws. May they both live long to enjoy their honors.

Dr. Fletcher has been one of the active el-

lows, and an efficient officer of the Royal Society of Canada, and has contributed several valuable studies to the proceedings of that body. He has not found time to collect his material into book form, but his papers and investigations may be found scattered through half a dozen series of reports for the past twenty years. While he is a first-class investigator, we consider his strongest point is his ability to interest an audience, and to arouse their enthusiasm in agricultural work. His instruction is clear, inspiring, and wholesome. He quickly gains the attention of his hearers, at the same time he knows enough not to weary his audience. His geniality beams out in his talk, and he gets the confidence and sympathy of the people to whom he is speaking. He is generous to others, not seeking to monopolize time, attention, or credit—he is just the kind of man that one likes to work with. Every one is pleased to see Dr. Fletcher's name on the program, or at the head of an article, and the fruit growers of Canada will be exceedingly pleased to see his portrait on these pages.

OUR BARTLETT PEARS IN ENGLAND.

The pear imports are heavier now than ever. More than half the quantity received is drawn from France, though California is now becoming a keen competitor of the continental pear growers. Fair quantities are drawn from Holland and Belgium, but the French and Californian are best in quality. As a pear-growing country Canada has no equal. We have, during the last five-and-twenty years, had much experience of imported pears, and we have no hesitation in saying that the finest William pears ever marketed from outside sources came from Canada. The French William has had a high reputation in Covent Garden market

for over twenty years. The California William is fine. But those sent us from Canada two years ago to report upon officially were of mammoth proportion, with a clear yellow skin, and a melting sugary and juicy flesh. In quantity they were worth from 3s. to 6s. a dozen fruits. Then again, from Australasia we have had some fine pears sent into London. The colonial pear trade should be made a large business, and when the growers set themselves to satisfy the market's need they will find our merchants only too anxious to get their fruit.—*S. Morgan in Birmingham Post.*

COLD STORAGE OF FRUITS

STORAGE OF PEARS AND APPLES.

BULLETIN 123 of the Ontario Agricultural College, by J. B. Reynolds and H. L. Hutt, treats of an experiment with cold storage of pears and apples, which will be of interest to many of our readers. We give below a summary of the bulletin, a complete copy of which may be obtained upon application to the college.

The two fruits made use of for this experiment were the Duchess pear and the Fameuse or Snow apple, and the conditions experimented upon affecting the keeping of the same were: (1) different temperatures; (2) different sizes of fruit, and (3) different styles of packing. The temperatures aimed at were 31 and 38 degrees. The fruit was all first class, but was graded into large and medium sizes. The styles of packing were as follows:

A. Fruit in an ordinary packing case, holding one-third of a barrel, without wrapping paper or filling.

B. In the case unwrapped, with excelsior at top and bottom.

C. In case wrapped in tissue paper, with excelsior top and bottom and between the layers.

D. Same as C, except oil paper was used instead of tissue paper.

E. Same as D, with heavy wrapping paper between box and the fruit, making the box airtight.

F. In barrel packed in the ordinary way (used on apples only).

From the results obtained the following conclusions are drawn:

1. *For long storage, the medium-sized grade gives better results than the largest sized grade of fruit.* This is evidently a matter of maturity; the larger fruits are on the whole riper than the smaller ones, if picked at the same time. It would there-

fore appear profitable with choice varieties to pick the larger fruits, if intended for shipping or storing, a week or two earlier than the medium-sized ones.

2. *The style of packing is a most important consideration.* The fruit wrapped with either tissue or oiled paper and packed between layers of excelsior gave by far the best results. The wrapping and filling has a two-fold effect of preventing bruises and preventing the spread of decay throughout the package. In the unwrapped fruit three or four decayed specimens were frequently found in a group, showing that decay had spread from one apple to adjoining ones.

3. *The lower temperature is the more favorable one for the long storage of fruit.* Further experimenting is necessary to ascertain the most suitable temperature for the various classes of fruits, but those under the test kept well at 31 degrees.

4. *Under even the most favorable conditions there is a limit beyond which it is unprofitable to hold fruit in storage.* Cold storage postpones, but cannot avert, maturity and decay. The limit for the Duchess pears was reached between Christmas and New Year's while the Snow apple kept well into March.

HANDLING OF FRUIT AFTER REMOVAL FROM COLD STORAGE.

It has been charged against cold storage that produce quickly deteriorates after being removed from cold storage conditions. That it usually does so, is quite natural. If the produce has been held for a considerable length of time in cold storage, the process of decay has been working, though very slowly. When the produce is removed from the low temperature into surroundings favorable to rapid decay, it is not to be ex-

pected that it will resist deterioration so well as if fresh.

Careful handling after removal from cold storage will lengthen the life of the fruit. In the apple experiment two basketfuls of sound apples were selected from the same lot after examination. At the time of selection, the apples having been examined in a warm room, they were quite wet, owing to deposition of moisture from the warm air of the room upon the cold apples. They were "wets," as they are termed in the old country markets. One basketful of these wets was allowed to remain in the basket as they were. The other basketful of these wets was removed from the basket and spread out thinly over the table. The former lot remained wet for some time, the latter dried off quickly. Next day they were removed to the cellar and left there in the same way as described. After ten days they were again examined, with the following results:

First lot (left in basket)—Sound, 70 per cent; discolored, 30 per cent. (12 per cent. rotten).

Second lot (spread out thinly)—Sound, 89 per cent; discolored, 11 per cent. (5 per cent. rotten).

The difference in these two lots was simply one of drying off quickly or remaining wet. It would have been better, of course, if they had not been allowed to become wet at all. To this end, the fruit should be warmed gradually, moisture not being allowed to form on its surface; or the warm air should be kept from contact with the fruit, by a covering or an air-tight package, until the fruit has attained the temperature of the surrounding air.

COLD STORAGE FROM THE FRUIT GROWER'S POINT OF VIEW.

The foregoing account shows that certain results may be reached by cold storage. It remains to be considered (1) whether or not

such storage can be made commercially profitable, and (2) if so, how storage facilities may be obtained by the grower.

CONSIDERED COMMERCIALY. In considering the commercial side of the question, we must remember that the plan of storage recommended above as securing best results involves two items of additional expenditure: first, the extra cost of packing; and secondly, the cost of storage. The extra cost of packing, Mr. A. W. Peart, Burlington, Ont., who has packed a good deal of fruit in this way, estimates as follows:

"Extra labor in wrapping, four cents per box.

"Wrapping paper and excelsior, seven to eight cents per box.

"Total extra cost, seven to eight cents per box.

"As against this, however, it must be borne in mind that four boxes of bare pears will make about five boxes of wrapped ones."

There is also to be added on the credit side the saving of fruit from bruising and decay by the superior method of packing; and this, for the fruit grower who looks to the future, means, besides the actual saving of fruit, the possibility of establishing a reputation for furnishing an article of first-class quality.

As to the cost of storage, the wisdom or unwisdom of incurring the expense will depend entirely upon the state of the market when the fruit is harvested, the probable difference between present rates and rates a month or three or six months hence, or the difference between local prices and prices in the foreign markets (for storage implies storage in transit as well as in the warehouse). In fact, this being a commercial question, is solved as all commercial questions are, by taking the risk, and depending upon increase in prices to repay cost of holding and shipping. As to the probability of profit from such a venture we quote the fol-

lowing from the United States Year Book for 1900: "Most storage establishments store apples in carload lots at about forty cents per barrel for the season ending May 1st, and it is rarely the case that sound fruit does not advance more than that in price by March 1st, while a rise of \$1 or even \$1.50 per barrel is not infrequent."

COLD STORAGE CONSIDERED MECHANICALLY. As to the question of securing cold storage accommodation, there is, first of all, the *cellar*, available to all. For late fall and winter storage a well-ventilated cellar will serve the purpose of the family in preserving apples and late pears. In this statement there is, of course, nothing new; but it is necessary to repeat at this juncture that there are three reasons for the spoiling of fruit in cellars: First, the fruit, all or part of it, may be of poor quality when stored. Then the handling, packing, or manner of storing the fruit may be careless. Finally, the storage room may be badly ventilated and uneven in temperature. The cellar should be well ventilated, with the window or windows open as much as possible, so long as the temperature does not drop below freezing. If the windows are left open, the temperature of the cellar will require careful watching, and a thermometer suspended about the middle of the room is advisable. A proper average temperature for a mixture of fruit and vegetables is 36 degrees F., and the temperature of the cellar should be kept at that point as steadily as possible. Of course, with early fruits that are stored during the warm weather of September and October this temperature cannot be reached, nor yet in the spring with late-keeping fruits. The cellar, however, even at these times, will likely be cooler and steadier in temperature than any place above ground, not artificially cooled; and therefore, it is better to make the most of it. Fruit that is intended for long keeping *should be packed and stored immediately*

after picking, and not left in heaps in the orchard or the shed.

A *small ice-storage* is another means for preserving fruit. This is superior to the cellar in warm weather, and, therefore, generally more suitable for this purpose. For private purposes, an ice-storage may be built for \$250 and upward, according to the size and style of insulation. It includes a refrigerator, or storage room, and an ice house attached, where the ice is stored in the winter and does its duty without being rehandled. The refrigerator is cooled after the most approved fashion by the circulation of air between that chamber and the ice house.

While this kind of storage is generally satisfactory if properly constructed, it has limitations inseparable from refrigerators cooled by ice. The principal of these limitations is that of temperature. It is difficult to keep the temperature down to the lowest desirable limit in summer, and in winter there is danger of freezing. Especially is this the case while the ice is being put in, and afterwards.

The third method is the large co-operative storage, owned and operated by a company of fruit growers, situated at a railway depot and in the midst of a fruit growing district. This kind of storage accommodation has many advantages. The fruit stored here can be marketed promptly and without long hauls. A large company can afford to build a well-equipped plant, well insulated, and well provided with the best arrangements for refrigeration, and to employ a capable manager to look after the fruit and see that the temperature and humidity of the various rooms are of the proper degree. While a fairly satisfactory plant on a large scale can be refrigerated by the use of ice, the large plants of the future will be cooled by machinery. There is an account of such a plant in the April number of the Canadian Horticulturist for 1902.

A fourth means of storage is the large warehouse, where space may be rented. There are a few of these in Ontario now, there will be more when the demand increases. The rates at these are moderate, so moderate that it can rarely happen that the fruit grower will not have a good margin of profit after deducting the cost of storage from the advance in the price of fruit during the storage season. A price list at hand from a large cold storage warehouse gives storage rates as follows:

Barrel, 10 cents per month, 25 cents per season ending May 1st. Bushel box, 5 cents per month, 15 cents per season. Box containing one-quarter barrel, 4 cents per month, 12 cents per season.

SUMMARY.

1. Apples and pears keep best when wrapped singly in paper, and packed in a shallow box not larger than a bushel. They ship best when, in addition, they are packed in layers with excelsior between.

2. Apples keep better at a temperature of 31 degrees than at a higher temperature. The experiment does not show what is the best temperature for pears.

3. Cold storage cannot make bad fruit good; neither can it keep bad fruit from becoming worse. Only good specimens will keep for any length of time in cold storage, or will pay for storage.

4. For long storage, it pays to select the best fruit and to pack it in the best manner known. The extra labor and the cost of

material are more than repaid in the greater quantity and better quality of fruit left at the end of the storage period.

5. With apples and pears at least, and, it seems likely, for most kinds of fruit, the fruit should be picked and stored in advance of dead ripeness. The maturing process goes on more slowly in cold storage than on the tree or bush.

6. With the two kinds of fruit tried, apples and pears, the medium sizes of fruit keep longer than the largest, all being perfect specimens and picked at the same time. It would, therefore, be an advantage, especially with pears and peaches, to pick the larger specimens first, and leave the smaller to mature later.

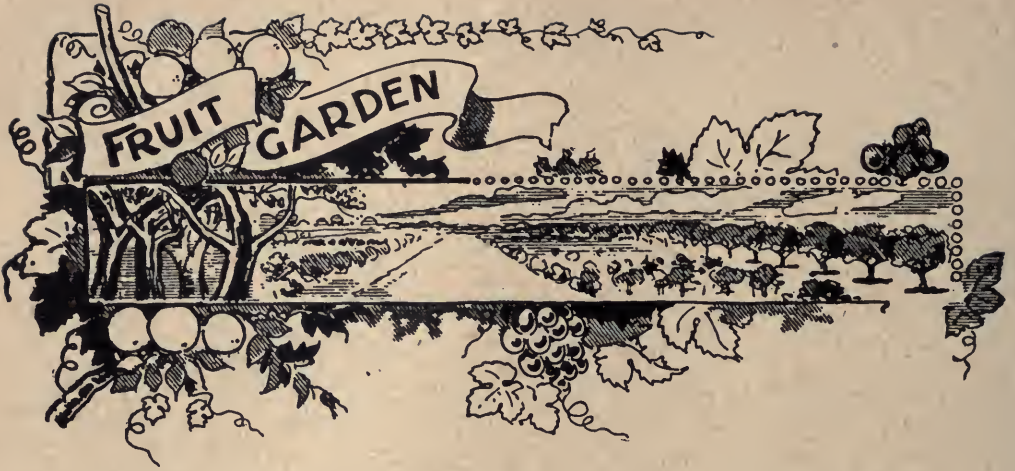
7. Fruit, on being removed from cold storage, should be allowed to warm gradually, and moisture should not be allowed to deposit upon it. But if the wetting cannot be prevented, then the fruit should be spread out and dried as quickly as possible.

8. With all kinds of fruit there is a time limit beyond which it is unprofitable to hold the fruit in cold storage, or anywhere else. That limit, for sound fruit, is dead ripeness. Duchess pears can be kept profitably until late in December; Fameuse, or Snow apples, until March or April. The time limit has to be determined for each kind of fruit.

9. In addition to proper conditions in the storage room, the most important points in the storage of fruit are the *selection* of sound fruit, *grading* into uniform sizes, one variety only in a case; and careful *packing*.

PEAR TREES do not often reach great size, but they do achieve greatness sometimes by the fruit they produce. Under modern systems of cultivation this is not so remarkable; but it is recorded in a quaint volume of Scottish lore, published in the early part of the nineteenth century, that at Melrose a

single pear tree for fifty years yielded the interest of the money paid for the garden and a house in it; while in 1793 two trees there yielded 60,000 pears. Such an enormous crop would be difficult to surpass now, notwithstanding the immense improvements that have been effected in fruit culture.



THE SELECTION OF BUDS FOR BUDDING.

AT a recent meeting of the American Nurserymen's Association, Prof. L. H. Bailey took as the subject of his address, "The Whole Question of Varieties," and at the close of his remarks a question was asked which should be carefully considered by every propagator of trees at this season of the year.

The question was put by Mr. George A. Sweet as follows:

As I understand Prof. Bailey, his suggestion is that the practical nurseryman must select his buds from a known bearing tree of value, and thereby get a valuable strain of that variety. Now, the point that occurs to me is this: We will say that we go to Mr. Hale, who is a great peach man, and say that we want some buds from the best Crawford peach that he has on his place, and we get a package of buds and bud them. Now, next year, is it assumed by Prof. Bailey that we must send to Mr. Hale again and get our stock of buds from that particular tree, or are we at liberty to use the buds that come from the growth of that tree, assuming that parent tree to have been the most valuable Crawford to be grown? If he takes that position, of course it would

simplify the question of bud selections; but if he accepts the latter proposition, where is the limit to come? Are they going to deteriorate in the second or fourth generation, or are they all going to propagate true to name, as the original? That is practically what our nurserymen are now doing. I should like to know if, with that limitation, it would be possible to cut sufficient buds from one tree to carry on the business?

Prof. Bailey—I am glad to have that question brought up, because it is exceedingly important, and because on that hinges the feasibility of the whole scheme. I am free to say that I cannot answer Mr. Sweet's question. There are four or five questions involved which have been up a number of times before societies; one comes before a meeting of this sort with more or less theoretical ideas of things which are going to come in the future. I do not expect any nurseryman ever can live up to these ideals in the beginning, but we are going to work along that line, reaching them as nearly as possible. Now, to come down to the great question of Mr. Sweet's, I am so much interested in this matter myself that on my own place I have planted a small orchard of

Northern Spies. I have grafted part of these this year with scions from a King apple tree; I have grafted the other with scions from nursery trees which ten years ago were taken from that same apple tree, for the purpose of finding out whether in the ten intervening years there has been deterioration. I believe, as a matter of theory, that it is the best for the nurserymen every year to go back to his bearing tree, but I do not think you can do it; it is only in rare cases and in special varieties that you can do that, and just how long these nursery trees can be propagated without deteriorating I do not know and no man knows. I believe one reason why the Crawford peach is running out is because we are propagating from so many different strains of it; but whether by reason of a strain having been introduced that chanced

to deteriorate in the nursery row, I cannot say. My own opinion is that we ought to try to renew back from the original tree as often as we can, and, when the opportunity arises, once in five years, or once in ten; and I believe the oftener we can renew, the safer we are, without saying that we are not safe if we do not renew. I know, however, that there is such a thing as individuality in a tree, and I am perfectly sure that a great deal of individuality passes over. At present we are thinning out the cattle in the dairy herd by means of the Babcock test; we are finding that many cows never paid for their board, and are thinning out these cows all the time. I wish we could apply a Babcock test to our orchards by means of which we could eliminate those trees that do not pay their board, or at least that we never should propagate from those types of trees.

BUDDING FRUIT TREES

IN Ontario budding is usually performed in the months of July, August and September, the later date being for young trees which have a long season of growth; such as peach trees in their first year from the seed. The essential conditions are, (1) that the bark can be raised easily, and (2) that the growth of the season is so nearly completed that the new layer of wood inside the bark has acquired some consistency, and has ceased to be thin and watery. It is this new wood which, in its ripening process, is to grow the bud fast to the young tree; therefore, the importance of its being in the right condition. This may be known by the young tree beginning to form its terminal buds, in completing the season's growth.

The buds to be put in are obtained from shoots of the current year's growth, and

they are usually more perfect if grown in full sunshine. As soon as cut, the leaves are to be removed—all but about a third of an inch of the footstalk, which is left to hold the bud by when putting it in place—and three inches or so of the immature point of the shoot is rejected, as are also two or three of the lower and imperfect buds. A prepared "stick of buds" (as it is termed) is shown at *a* in Fig. 2633. Several of these "bud sticks" may be prepared at one time, if desired, but they must be kept in a damp cloth until used, and on no account allowed to become wilted. Scions for grafting, being fully ripened wood, will not be seriously hurt by a slight wilting, but this would ruin buds. When properly managed, by being wrapped in damp moss (sphagnum) and inclosed in waterproof paper, these "bud

sticks" may be sent a thousand miles by mail or express. This is a great convenience in the way of obtaining promising new fruits for trial.

The knife specially made for budding is most suitable, but one who has had some experience will succeed with other knives—a first rate "Barlow" has done good work. It should have a thin blade, a very keen edge and a half-rounding point. And it should be used for no other purpose than budding. An ordinary knife must be at hand also, to be used in any trimming of the young tree that may be required.

The budding may be done in the branches of a large tree if desired; but in the case of a young peach tree (or a young tree of any



FIG. 2633.

kind) it is best done within two or three inches of the ground. A smooth place in the tree, or branch—the "stock," as it is called—is selected to receive the bud; and if any leaves or young shoots are in the way they are to be removed; and the dirt is to be wiped off with a rag, so that nothing will interfere. An upright incision, about an inch in length, is made with the rounded point of the budding knife, just through the bark, holding the knife in the fingers about as a lead pencil is held; then a short cross incision is made at the upper end of the first one, as at *b* in Fig. 2633.

Now comes the raising of the bark, which is a very particular operation, for it must be done without touching the soft layer of new wood under the bark. If the soft, new wood is touched a wound is made, and while this wound is healing the bud which is put in perishes, instead of growing fast to the stock. The raising of the bark must be done gently, beginning at the upper end of the incision. This is done with the thin piece of bone at the end of the handle of the knife, pressing on the cut edges of the incision and lifting slightly on both sides and the whole length of the incision. In the absence of the regular budding knife, a thin, smooth piece of wood may take the place of the piece of ivory, but the expert budder requires neither, as he uses the rounding point of the budding knife—and saves time. Fig. 2633 at *c* shows the incision made and the bark raised, ready for the bud.

A bud is now to be cut from the prepared scion, which is held in the left hand with the lower end extending outward. The knife is made to enter about half an inch below one of the buds and is drawn toward the operator, nearly horizontally so as to make a thin slice of the wood along with the bud, and coming out about three-fourths of an inch above the bud. Fig *d* represents the bud ready for insertion. (The piece of footstalk of leaf is not quite long enough for convenience in holding). Some take out the thin slice of wood, but this is unnecessary, and sometimes injurious.

The bud is taken hold of by the footstalk left for the purpose, and inserted under the raised bark, beginning at the upper end of the incision and pushing it down gently to the lower end. In case a portion of the bud extends above the cross incision, it is to be cut off so as to make a good fit, according to *e* in Fig. 2633.

Tying is done at once, in order to exclude air and moisture and assist the healing process which is to unite the incision, using

both ends of the material, wrapping moderately tight, continuing upward and covering all the incision but leaving out the bud and the piece of footstalk, and finishing with a knot at the upper end.

The tying begins at the lower end of the bud with the stock. Any soft material answers for tying; woolen yarn, narrow strips of calico or muslin, etc. When much budding is to be done, prepared basswood bark is used, or raffia, which is to be had in the seed stores. The latter is prepared from the leaves of a kind of the palm tree found on the island of Madagascar.

The short piece of leafstalk will remain green, and in a week or ten days will drop off on being touched. If it dries up and sticks fast after the ten days have passed, the bud has failed. But if the bark can still be lifted the tree may be budded again, selecting a new place on the stem.

The tying may remain from two to three

weeks, but will need occasional looking after, so that it may be prevented from cutting into the tree, which it is apt to do if the tree is growing rapidly. In that case, it may be untied in a week or so, and tied again but less tightly.

After the final untying, nothing more needs to be done until the next spring. About the time the sap begins to move, the top of the young tree (or branch) is to be cut off about three inches above the bud. The sprouts from the stock will then start, even more readily than the bud, but they must be rubbed off from time to time, so as to throw the sap and the force of the growth to the bud; and in July or August, the stub—the three inches of wood left above the bud in spring—is to be cut off with a sloping cut on the side opposite the bud. This wound will soon heal over and the work will be perfected.—*Exchange*.

THE ASH HEAP AND HEN MANURE.

THE horticulturist should make an economical disposition of two things that are generally regarded as household nuisances—the ash heap and the droppings of the poultry house. There is nothing that will lighten and loosen a stiff soil so quickly as coal ash siftings. Mr. Allen, the celebrated bulb culturist, of Long Island, thinks there is nothing so good in its mechanical effects and he uses large quantities on his lily beds. Take your ashes every morning as they come from the stoves and before they get wet, sift them through a coal sifter, the coarse part you use on your walks about the premises; the fine, dust-like portion you carry to the henhouse and scatter it over the droppings. It will absorb the gases that arise, keep the floor dry and the air pure—

a sort of dry earth system. Every few weeks when the weather permits, the contents of the hen house are wheeled out and spread as a top dressing over the beds of perennials. Will it do any good? Yes, four-fold.

Firstly, it has charitably aided that ash heap to lose its existence; secondly, your hens shall feel better and your labors shall be rewarded with more eggs; thirdly, it does the soil of that flower bed good by loosening it, and fourthly, it does the plants good by feeding them. Why, next June the pæonias will fairly clap their hands with joy. Did you ever dream that a four-fold blessing lay concealed in your ash heap?—*Pa. Horticultural Society Report*.

SYSTEM OF GROWING STRAWBERRIES

NEARLY every one who grows strawberries for home use or for market has his own ideas as to how the plants should be set out and cared for. If perfectly satisfactory results are obtained by the system already in use, it is well to be conservative about adopting new methods of culture; but few are ever perfectly satisfied, and any suggestions whereby desired results can be attained more nearly may be worth considering.

There are four general methods of growing strawberries—the hill system, the hedge row, the matted row, and the modified matted row. In the hill system the plants are set out in check rows about $2\frac{1}{2}$ ft. by 2 ft. apart, and no runners are allowed to form. This continual clipping back concentrates the vital forces in the original plant, and instead of expending the greater part of its energy in reproducing new plants, it goes to developing fruit crowns of great strength and vigor. Everything that will aid in this development should be supplied in liberal quantities. Plant food and moisture are two of the most essential requisites. Aim to grow plants with such a multitude of crowns that a bushel basket will not cover them. This system is of special value when one desires to grow extra large fancy berries of high color and quality. It is more generally used by amateurs than by commercial growers; still, this is no reason why it should not be commercially successful for a fancy trade. For the home garden there is no better method, as the best berries are none too good for the family. It is quite important to make a wise selection of varieties, for not all stool up equally well. Marshall, Parker, Earle and Brandywine are excellent for this purpose in locations where they succeed.

The hedge row system naturally follows, for it is really a modified hill system. The plants are set out in rows about 3 ft. apart and 18 to 24 in. in the rows. The first runners should be allowed to root, placing them so that they form a continuous row with the plants originally set. They should not be nearer than 4 to 6 in. for best development. After a row has once been formed, keep all runners cut off by a wheel disk attached to the hand or horse cultivator frame. Nearly all that has been said in regard to the development of the fruit crowns in the hill system applies here, the crowns developing amazingly when once the tendency of runners to vines is checked. The hedge row system has the advantages of the hill system without entailing so much labor and expense. It allows one to cultivate right up to the plants, thus saving moisture and doing away with a certain amount of hand work. When the fruit is ripening, it is exposed to the sunlight, and size, flavor, firmness and color are obtained. Sample, Clyde, Haverland and Glen Mary are standard varieties that do exceptionally well grown in this way. When the merits of this system of culture become more generally known, the writer is convinced that the up-to-date commercial strawberry grower will adopt it, to the exclusion of others.

The matted-row system consists in setting the plants in rows $3\frac{1}{2}$ or 4 ft. apart, 2 to $2\frac{1}{2}$ ft. in the row, keeping off all runners for several weeks until the plants become established, then allowing the runners to form until a space 18 in. to 2 ft. wide is covered. On strong soil and with abundance of moisture, large yields of medium grade berries can be obtained. This method is very generally practiced, probably because it requires the least care. Its disadvant-

ages are many. After the matted row is formed, cultivation practically ceases, except in a very narrow strip, the plant-producing tendency is developed to the detriment of the fruiting strength, and vigorous crowns are few. The plants stand so thickly that in cloudy, wet weather the fruit is apt to decay, to lack flavor and color, and run small after the first pickings.

The modified matted row differs from the foregoing in the fact that after the plants have run so as to form a medium wide row, the rest of the runners are clipped off as

soon as formed, and also the weak plants—the row thinned out so that the remainder have a better chance to develop. It is a great improvement over the matted row, and fine berries can be grown.

The strawberry plant is a wonderful little organism, and it is only by carefully studying its behavior under different conditions and modes of culture that we are able to learn how to develop its various functions to suit our individual needs.—*G. A. Drew in Country Gentleman.*

THE TWIG-BLIGHT OF THE APPLE, PEAR AND QUINCE

BY

PROF. WM. LOCHHEAD,

O. A. C., GUELPH.

IT is probable that the year 1903 will be known among horticulturists as the year of the twig-blight, if we are to judge at the time of writing (July 10), from reports from the whole of the southern section from Niagara to Windsor. The disease seems to be widespread, and is producing alarm in the sections which are infested.

Although much has been written about this disease, yet the story of the blight is always an interesting one, and is not as well known among fruit growers as it should be. In spite of all that has been done and written, we do not know of any sure, easy method of controlling the disease. It is true that the cause of the trouble, and the mode of infection have been determined, but it is also true that there is no easy practicable remedy. It can be kept under control by cutting out the affected parts and burning them, but a continuance of this practice renders the trees unsightly, and practically useless in a few years.

The Cause: The cause of the trouble is a bacterium or microbe, which enters the

plant through the blossom and tips of growing shoots. It is very frequently observed that some of the flower clusters turn black, as if they had been frost-bitten. The young fruits are also killed, and the disease spreads rapidly to the twigs and limbs. In a limb which has been killed by the blight certain characteristics make their appearance:

1. The leaves die in about two weeks after the limb or twig is killed;
2. They remain attached to the stem, and the tree appears as if it had been scorched with lightning or a hot fire;
3. The inner bark and cambium layer of the limbs are destroyed;
4. The bark becomes almost black or dark brown;
5. At the close of the season of growth there is a distinct line of separation between the diseased and healthy wood, but during the growing season there is but a gradual change in color observed in passing from the healthy to the dead wood.

The greatest amount of damage is done within a few weeks of the first appearance

of the blight, and usually the disease ceases to spread with the close of the season. In such cases the bacteria are virtually all dead before winter sets in, for they cannot withstand drying out of the twigs. In some cases, however, the disease lingers on into the winter, and actually survives the winter. According to Mr. M. B. Waite, of Washington, whenever infections occur in late summer and autumn there is a likelihood that the bacteria will winter over.

Spring Infection: In the spring when the sap gorges the tissues of the twigs and limbs, the dormant bacteria revive and begin to invade new areas. The warmth and moisture combined favor the rapid development of the disease, and upon the exudation of the gummy substance from the bark of the diseased twigs many bees, wasps and flies feed. The flowers visited by these insects are inoculated, and soon show symptoms of the blight. Even after the blossoming period the bacteria may be carried to the tips of growing shoots and find entrance thereto.

Condition of Trees Infected: Unfortunately for the fruit grower, the trees that are making the most rapid growth are usually the most easily infected and injured. One grower reports that the pear orchard which was badly infested with the Psylla this and last spring has almost entirely escaped the blight, but that the orchard which escaped the Psylla is blighted very severely.

Name and Appearance of the Bacterium: The scientific name of the twig-blight is *bacillus amylovorus*, discovered by Prof. Burrill, of Illinois, in 1879. The bacteria are very minute, being about one twenty-thousandths of an inch in diameter. They are oval, rather than round, and are colorless.

Reasons for Supposing These Bacteria are the Cause of the Blight: 1. These bacteria can be taken from a diseased twig

grown in pure cultures, and when pear, apple or quince twigs are inoculated with the bacteria from the cultures the disease or blight is produced. 2. In such inoculated twigs the bacteria are again found in abundance; and 3. The same kind of bacteria are found in blighted trees.

Some of the Theories as to the Origin of Blight: 1. The action of the hot rays of the sun during very humid weather derange the machinery of the plant; 2. The action of a small bark beetle, *Xyleborus pyri*, often called the blight beetle, which causes the portion of the twig attached to die; 3. The freezing of the immature wood in autumn and winter produces a poison which the currents of sap distribute, causing the death of the parts; 4. A fungus was supposed to bring about the blight, but this fungus has never been discovered; 5. The action of lightning and atmospheric electricity scorches the twigs; 6. A bacterium enters the plant and kills the tissues. This last theory is the one generally accepted at the present time.

Treatment: Since it is believed that only the bacteria of the late infected portions winter over, it is evident that if these late infections were cut out and burned there would be but a small chance for infection the following spring. But we cannot tell these late-infected parts from the others; so, to be sure, we would cut out all the blighted parts of the tree. In years like this this cutting would be a formidable task, especially at a time when the fruit grower is already overworked. This work may be done any time when the tree is dormant, but the best time is the fall before the leaves fall, for then it is quite an easy matter to distinguish blighted from healthy limbs.

If it were practicable it would be wise to cut out blighted twigs whenever they show themselves, for the disease tends to intensify from year to year.

SPRAYING POTATOES

NOW IS THE TIME TO PREVENT BLIGHT AND ROT:

BY

W. T. MACOUN, C. E. F., OTTAWA.

NOTWITHSTANDING the fact that year after year the potato crop in Canada is very much lessened by blight and rot, and that this blight can be prevented to a large extent by spraying, comparatively few farmers spray their potatoes to prevent this disease. It has been known for about eighteen years that Bordeaux mixture will prevent the blight, and it has been frequently demonstrated by experimenters and by other growers of potatoes that the crop is much increased by spraying. In order, however, to get potato growers to spray it is necessary to keep constantly demonstrating the value of it. The results of the tests made at the Central Experimental Farm, Ottawa, in 1902 and 1903 should be sufficient to induce everyone who lives in a disease-infected district to spray.

In 1901 eight varieties were tested. The average increase in yield per acre of the eight varieties, where sprayed, was 94 bushels. In one variety, however, there was an increase of 171 bushels, and in another 155 bushels per acre.

In 1902 eleven varieties were tested. The average increase in yield of marketable potatoes, where sprayed, was 120 bushels per acre, the yield per acre of marketable potatoes from the sprayed being 310 bushels 12 lbs. per acre, and from the unsprayed 189 bushels 54 lbs. The cost of the bluestone, which is the principal expense, was \$7.98 per acre, or 114 lbs. at 7 cents per lb. In spraying large areas the cost would be less. At 40 cents a bushel, an increase of 120 bushels per acre would mean \$48, or after deducting the cost of the bluestone, about \$40.00.

The object of spraying is to destroy the spores of the disease on the foliage. If the mixture is not there when the spores are

there the disease will usually spread very rapidly and soon the tops are destroyed. The foliage should be kept covered with the mixture from the middle of July, when the spores may be expected to appear, until the end of the season, and from four to five sprayings will be found necessary. In 1902 the vines were kept growing 18 days longer by spraying. The vines were sprayed on July 10th, July 22nd, July 30th and August 13th, and probably even better results would have been obtained if another spraying had been made.

Formula for spraying to prevent potato blight and rot:

Copper sulphate (bluestone), 6 lbs.

Unslaked lime, 4 lbs.

Water, 40 gallons.

Dissolve the copper sulphate with hot water or by suspending for several hours in a coarse bag in a wooden or earthen vessel containing four or five or more gallons of water. Slake the lime in another vessel. If the lime when slaked is lumpy or granular it should be strained through coarse sacking or a fine sieve. Dilute the sulphate of copper solution to about 20 gallons, and the lime mixture to about 10 gallons, and then pour the latter into the former, then dilute to forty gallons and stir the mixture thoroughly.

Stock solutions of copper sulphate and lime at the rate of 1 lb. to 1 gallon of water may be prepared and kept in separate covered barrels throughout the spraying season and diluted and mixed when needed.

While the potato beetles are active, 8 oz. of Paris green should be added to each 40 gals. of the Bordeaux mixture. The mixture should be applied by means of a spray pump with a good nozzle in order to get a fine spray, which is necessary to get best results.

A NEW GOOSEBERRY FRUIT WORM

BY

PROF. WM. LOCHHEAD,

O. A. C., GUELPH.

THERE is evidently a new pest working on the green gooseberries, the life-history of which I am not familiar with. This pest is working havoc in the plantations of Mr. Stanley Spillett, of Nantyr, and has caused most of his gooseberries to fall prematurely to the ground. My attention was first called to the work of this insect on the return of Prof. Hutt from an official visit to the Nantyr Experimental Station a few weeks ago, when a small box of infested gooseberries was handed to me with instructions to determine the cause of the falling of the fruit, and their premature reddening. Beyond these particulars there was nothing else that attracted attention, or indicated that anything was wrong.

Four or five days after the box was received the fruit began to soften at the core, and an examination showed the presence of a small caterpillar in every fruit. It had eaten away some of the pulpy tissue near the core, and the fruit had collapsed, and incipient decay had set in.

The caterpillar at this date (July 13) is between one-third and one-half an inch in length; is white, with a slight tinge of green; it tapers slightly towards both ends; its head and cervical shield are dark brown; each segment of the body has several (eight) little elevations, from the centre of each a hair arises; it has three pairs of true legs and five pairs of pro-legs, hence it is probably the larva of a moth.

The caterpillar occasionally comes to the surface, as exit holes are sometimes visible, and if a caterpillar is taken from one berry and placed on another it will soon make its way inside. As a rule, I think it prefers to

eat somewhat close to the skin of the fruit, rather than near the core.

The accompanying letter from Mr. Spillett shows how the pest is affecting his plantation. He very naturally would like to know if any other grower is suffering from a similar cause.

It is impossible to give the name of the pest at this stage of its life-history. It is probable that arsenical poisons will have to be used early in the season, just after blossoming, to control the pest, for once within the fruit it cannot be controlled. It is probable also that fall cultivation may be a means of destroying the hibernating stage, although this cannot be definitely ascertained until we know the full history of the insect.

Editor Canadian Horticulturist:

For four years the fruit of all the thin skinned American varieties of gooseberries has been dropping from the bushes just as they are fully grown. This falling has grown worse every year, till now almost every berry is down. At first I attributed this falling to drought and over loading, and resorted to close pruning and mulching to prevent it, but no change in results. E. D. Smith, M.P., of Winona, has had a similar experience. For the last two years I have had strong suspicion that this falling, which has now become serious (at first enough was left upon the bushes for a nice crop), is caused by the presence of a maggot in the berry, as every berry, after lying on the ground for a few days, has a dark spot appear upon the surface of the skin which gradually enlarges until the whole pulp becomes red, but not ripe. Again, the thick

skinned foreign varieties are never so effected.

A lady here informs me that she picked up a tin pailfull of these fallen berries, for they look all right when they first fall. She set the pail upon a table, where it remained all night. Next morning she was surprised to find the pail literally covered with small worms or maggots.

Upon his last official visit Prof. Hutt, of the O. A. C., took away a pint of those fallen berries to investigate, and following his instructions I have a pint put up in a glass jar with thin muslin tied over to see if any grubs make their appearance.

This year I have kept my bushes sprayed continually with flour of sulphur in the hope

that the offensive smell would prevent the fly from depositing eggs, but with only failure as a result.

Pearl, Downing, Champion and Red Jacket have not a dozen berries each left upon the bushes.

The first thing is to detect and know the fly that deposits this egg, for I have no longer any doubt of this being the cause.

It seems a great pity that just as we have got such a perfect variety as Josselyn that such a pest should appear upon the scene. I should like to know if others have their gooseberries effected in this way. Last year we lost about 25 per cent. of the crop, but this season 100 per cent.

Nantyr. STANLEY SPILLET.

THE PRESERVATION OF FRUITS FOR EXHIBITION PURPOSES.

BY

PROF. H. L. HUTT, O. A. C., GUELPH.

MOST of the large exhibitions, as well as the smaller township and county fairs, are held at a time when nearly all of the small fruits are out of season. Consequently we seldom if ever see a good display of these valuable small fruits on exhibition. That they can be preserved in good condition for such a purpose was fully demonstrated by the display of strawberries, raspberries, currants, gooseberries, etc., made by the Ontario Agricultural College at the Pan-American Exposition at Buffalo.

We have at the college also a collection of fruits in antiseptic fluids, some of which were put up four years ago for the Paris Exposition, and others that have been in the jars seven or eight years and are still in good condition.

In the collection put up for Paris and

Buffalo neat glass jars of various sizes, with large mouth and glass stoppers were used, but for less pretentious exhibitions the ordinary glass fruit jars should answer the purpose well.

For the benefit of those interested in exhibiting fruits at the fall fairs, as well as for the many inquirers we have from time to time wanting to know how these fruits are kept, we give below brief directions for preserving fruits in this way.

The fruit should be carefully selected, and if possible shown on the branch just as it grew. This prevents it floating to the top, as it would if the jar were not full of fruit. Strawberries are best shown by picking them with long stems and tying the berries about a central twig so that each berry stands out separately. Care must be taken to avoid all bruising, and the fruit should be

arranged in the jar to show it to the best advantage. Usually most of the leaves on fruit clusters have to be removed. When the fruit has been placed in the jar the preservative fluid should be poured on so as to entirely cover all the fruit and fill the jar. The tops should be screwed on tightly, making it air tight. Neat gum labels may be used to show the variety. The printing should be large and legible, and the labels as small as possible to avoid covering any more fruit than necessary. To avoid bleaching as much as possible it is best to wrap the jars in paper and store them in a cool dark cellar till they are wanted for exhibition.

The fluids mentioned below are those recommended by Dr. Saunders, of Ottawa, for the preparation of the display at the Paris exhibition:

FLUID NO. 1.

Formalin (Formaldehyde), 1 pound (16 oz.); water, 44 pounds; alcohol, 5 pints. Allow the mixture to stand, and should there be any sediment, pour off the clear liquid and filter the remainder through filtering paper. This 2 per cent. solution of formalin or formaldehyde has been found very useful for preserving strawberries so as to give them a natural appearance.

FLUID NO. 2.

A solution of boric acid in the proportion of 2 per cent. Dissolve 1 pound of boric (Boracic) acid in 45 gallons of water, agitate until dissolved, then add 5 pints of alcohol. If the fluid is not clear, allow it to stand and settle, when the clear upper portion may be poured off, and the remainder filtered.

FLUID NO. 3.

A solution of zinc chloride in the proportion of 3 per cent. Dissolve one-half pound of zinc chloride in 15 pounds of water, agitate until dissolved, then add one and two-third pints of alcohol. Allow the mixture to stand until settled, then pour off the clear fluid and filter the remainder.

FLUID NO. 4.

Sulphurous acid, 1 pint; water, 8 pints; alcohol, 1 pint. Allow the mixture to stand, and should there be any sediment, pour off the clear liquid and filter the remainder.

List of fruits, with names of preservatives to be used in each case. Where two fluids are named, either may be used, but the first is preferred:

Strawberries—Solution No. 1, formalin.

Raspberries, red—No. 2, boric acid; No. 1, formalin.

Raspberries, white—No. 4, sulphurous acid; No. 3, zinc chloride.

Raspberries, black—No. 2, boric acid.

Blackberries—No. 2, boric acid; No. 1, formalin.

Cherries, red or black—No. 1, formalin; No. 2, boric acid.

Cherries, white—No. 4, sulphurous acid; No. 3, zinc chloride.

Currants, red—No. 1, formalin; No. 2,

Currants, white—No. 4, sulphurous acid; boric acid.

No. 3, zinc chloride.

Currants, black—No. 2, boric acid.

Gooseberries—No. 1, formalin; No. 2, boric acid.

Apples, green and russet—No. 3, zinc chloride.

Apples, more or less red—No. 2, boric acid.

Apples, white or yellow—No. 4, sulphurous acid.

Pears, russet—No. 3, zinc chloride.

Pears, green or yellow—No. 4, sulphurous acid.

Plums, dark colored varieties—No. 1 formalin; No. 2, boric acid.

Plums, green or yellow—No. 4, sulphurous acid.

Peaches, apricots, nectarines or quinces—No. 4, sulphurous acid; No. 3, zinc chloride.

Grapes, red or black—No. 1, formalin; No. 2, boric acid.

Grapes, green or yellow—No. 4, sulphurous acid.

NOTES FROM THE NORTH

BY

CHAS. YOUNG,

RICHARD'S LANDING, ST. JOSEPH'S ISLAND.

PERHAPS a few observations on how our fruit trees have come through the winter and the condition they are in at this date in the far away north may be interesting to you. Early in December, 1902, we had a sharp frost before the snow, which usually falls in sufficient depth to prevent the frost getting into the ground, consequently many half hardy plants, roses and shrubs, more especially those which have a tendency to keep on growing into the winter were badly frozen. None of mine have been killed outright, but when the dead wood was cut off this spring they were a sorry looking lot. By the way, tell your readers of the Canadian Horticulturist in New Ontario that the Rambler roses are not sufficiently hardy here. I am sorry to say don't plant them, but they don't ripen up their wood before winter, and covering them will not save them. Perhaps more of these roses have been sold in this district than all the other shrubs put together. Sold upon the recommendation of travelling tree agents that they were hardy as a poplar. It is a case of throwing away money the same as in former years, when we would not plant anything in the apple line except a Spy, King, or Baldwin, not one of which, as far as I know is alive to-day. The reason for this I will leave to some one with more horticultural knowledge than myself.

The winter, as a whole, was fairly mild, although we had a drop to 30 below zero, but there was plenty of snow on the ground at that time. Spring opened up early, or rather the snow went away sooner than usual, with warm, bright sunny days and hard frosty nights, ideal weather for mak-

ing sugar and inducing sun scald, but bad for fruit buds, the consequence is that most plums and cherries were destroyed in the bud. I found that the English Morello buds were less effected than even the Ostheim, which is supposed to be very hardy. Of the sweet cherry fruit buds which were strung along the branches, only a few opened, and then had not strength enough in them to form fruit. Pears came through fairly well, and apples uninjured. Of the small fruits, strawberries promise an immense crop, and there is plenty of moisture in the ground to develop it. Of the eight or ten varieties of raspberries, Cuthbert has as usual proved the most tender. Grown alongside of Brinkle's orange, both were frozen to the snow line, but the latter makes so much better growth in the spring and is so much finer in quality that for home use it is to be preferred to the former. Of the reds, Loudon is to be preferred to all others I have tried. Currants and gooseberries are a good crop. This would mean with you an extraordinary crop.

The crop prospects I might sum up thus: Fall apples, very good; winter apples, good; pears, fair (this would be poor with you); sweet cherries, none; sour cherries, good; plums, a few (native plums seem no better than European or Japan); raspberries, very good (tons of wild fruit will go to waste in the woods and along the roadsides); currants and gooseberries, very good; strawberries, very good (I expect 1 quart to the plant).

No insect pests have troubled us so far this year.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL
SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED
IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR
CANADIAN TOWN AND COUNTRY HOMES.

CANADIAN PARKS ALONG THE NIAGARA RIVER

NOT only all patriotic Canadians, but lovers of nature the world over, are more or less interested in the preservation of the natural beauties of Niagara. The policy of the Niagara Falls Park Commissioners, as outlined by Mr. J. W. Langmuir before the recent convention of the American Park and Out-door Art Association, shows that the commissioners are aiming at making the Niagara frontier a beauty spot that Canadians may be proud of. Mr. Langmuir's address was intended in some measure as a reply to those who have criticized what they called vandalism on the part of the Canadian commissioners for allowing the various power companies to cut up the Queen Victoria Park. In the course of his address he referred to the financial difficulties which the commission had had to face and the happy solution of these by the concessions to the power companies and others, which in a short time will provide an annual revenue of about a quarter of a million dollars. This the commission proposes to expend in developing the beauty of the river front, in preserving the natural conditions in a locality so historic, and making it the resting place of tired millions who come to see it.

In concluding his address Mr. Langmuir said:

Will you permit me to venture to take an outlook into the future, the near future, I hope, and picture in your mind's eye the completion of all the plans and projects of the Park Commissioners on the Canadian side of the river. It is doubtless known to some of you, at least, that the river bank from Lake Erie to Lake Ontario is vested in the commission. This reserve, now in the process of being made the full width of 66 feet at all points, will be completed, the bank of the river protected from erosion by the construction of an electric railway on the shore line from Lake Erie to the park, a well-constructed and well-kept road, ornamented with shade trees along the entire bank of the river, forming an avenue to Queen Victoria Park. Within the park the works of construction in connection with the power plants completed, with only two artistically designed power buildings in sight, the river bank along the upper roads, the Dufferin islands, and the entire grounds above the Falls restored and beautified to correspond with the finished portion of the park overlooking the cataract. The unsightly buildings overlooking the Falls, in one of which we are now sitting, torn down, and a fine, artistic structure for shelter and refectory purposes erected, and the whole of the grounds, roads and walks in the park

brought up to the highest standard of æsthetic taste. Then, passing from the park surrounding the Falls to the lower gorge of the river, with its magnificent grandeur from the base of the cataract until its majestic banks and rushing waters merge into the quiet scenery of the lower river, we come to the Niagara Glen, immediately north of the whirlpool, comprising 100 acres of territory, unique in its unrivalled and primitive wildness, which by the construction of roads, walks and means of access will have become one of the most fascinating resorts in the gorge, as well as a very paradise for botanists. The Queenston Heights Park, with its grand panoram-

views, will be completed and restored, from the historic monument on the summit to the shores of the river below, with the whole river gorge, from the Falls to Queenston, improved and restored and its magnificent views and vistas opened up. In fine, the whole shore of the Niagara river, from Lake Erie to Lake Ontario, will be restored and converted into one continued series of avenues and parks for the recreation and enjoyment of the millions of overworked and tired humanity, where they can come for a time from the turmoil and toil to this Mecca of peace and quietness, to commune with the majesty of nature and the eternal.

BRAMPTON'S NEW PARK.

THE modern idea that parks and pleasure grounds are a necessity in the upbuilding of a respectable town or city is fast gaining ground.

We are glad to be able to record the fact that the town of Brampton, which has long been famous for having one of the largest set of greenhouses on the continent, is now

the possessor of one of the finest park properties to be found in any town of its size in the Dominion. This it owes to the generosity of Mr. W. J. Gage, the well known publisher of Toronto, who, on Dominion day donated to the town for park purposes a valuable property adjoining the county buildings costing \$20,000.

WOMEN'S CLUBS.

THE ladies of our Horticultural Societies might profitably form themselves into a club for the discussion of questions of Domestic Science or Home Sanitation. The following subjects for such clubs are suggested by Home and Flowers:

1. What can a woman do for improved sanitation?
2. Discuss the water supply of the neighborhood.
3. Discuss impurities of the soil about a dwelling and danger therefrom.
4. Consider the best location for sleeping rooms.
5. Is there any public or neighborhood

nuisance which threatens the health of the neighborhood? Is there any preventive to be had?

6. Discuss the best means of ventilating the rooms in a home.

7. Are the children exposed to any danger from disease in the surroundings at school? Appoint, if necessary, a committee to investigate this. Can individual drinking cups be supplied in the school? Are the floors of the schoolroom kept free from dust? Do the children sit in draughts? Are the outbuildings in a sanitary condition?

8. Is the care necessary for exquisite cleanliness conducive to the happiest homes?



FIG. 2634. A BEAUTIFUL STREET IN DAYTON, OHIO.

COMMERCIAL BODIES AND CIVIC IMPROVEMENT.

BY

E. L. SHUEY,

IN "THE HOW OF IMPROVEMENT WORK."

THE day is past when improvement of home surroundings is wholly a matter of private choice; when only an occasional "sweet will" decides whether weeds or flowers shall grow over the premises and sidewalks, and whether the principal ornaments of the rear yard shall be tin cans.

Neatly kept yards, well trimmed sidewalks and clean streets are now regarded as high evidence of the city's prosperity as much as large factories, and are one of its best means of attracting desirable citizens. The city must advertise as well as the business man to-day if it would attract capital, good men and women and law-abiding citizens.

Efforts are made by many cities to draw factories and business enterprises to settle within their limits. The advantages of railroad and steamboat communication, the nearness of markets or of raw material, the excellence of labor—all are arguments frequently used with manufacturers and investors to prove a city's opportunities. But in recent days it has been recognized that another element must be named; attractiveness of the home life, the beauty and healthfulness of the city, the excellence of its schools. All these are now seen to be essential to the growing town. In view of this, the improvement and beautifying of the city streets, parks, boulevards, and even of its yards and houses, become matters not

simply of individual preference but of public concern. The investment in attractiveness is no longer municipal extravagance, but prudent expenditure, hence the organization of improvement associations, usually composed of people of a neighborhood, or in smaller cities of an entire community, has come to be a recognized method of encouraging an *esprit de corps* which is essential to the best growth. Such societies have as their purpose not only the beautifying of external conditions but also general improvement and instruction. The Neighborhood Improvement Association is not, it is true, a recent form of organization, but its exten-

bodies—city, town and village councils, etc.—have it within their power very materially to assist these organizations by encouraging and passing well planned ordinances for securing the general purpose for which they are formed so far as they pertain to common interests.

It is within the power of these civic bodies

(1) To see that the streets and alleys are kept neat and attractive;

(2) To provide for the collection of garbage, refuse, etc.

Both of these are important, not only for the sake of appearance, but more especially for the sake of the general health of the community. With good laws, well enforced, backed by the interest of active improvement associations, a town may be revolutionised in a short time. Without the active assistance of well organized, interested citizens, it is difficult to enforce even the good laws. An improvement association is an excellent director of public opinion and educator of personal interests.

(3) To make reasonable but exact rules for good sidewalks, roadways, planting of trees, etc.

(4) To provide for parks.

(5) In short, to put into the form of ordinances and to provide for their enforcement, proper laws for municipal care of public health and improvement, and to enlist members of improvement associations or similar organizations in their best development.

It is important that the work be in harmony, remembering that members of other societies often are willing to give freely of their time and effort to encourage this feature.

In almost every city, the boards of trade, the commercial clubs and similar organizations are the representative bodies for business purposes. Their object is the proper advertising of the city's interests. No better means can be used to accomplish this



FIG. 2635. A CORNER IN GROUNDS OF WESTINGHOUSE AIR BRAKE CO., PITTSBURG, PA.

sion and importance are more fully recognized at this time.

The improvement association seeks the general good and asks assistance from every class of kindred social, educational and civic organizations. In the list of the possible helpers are the commercial and municipal bodies of many cities. While these are formed voluntarily or by law for the promotion of business enterprises or for legislation for the city's government and the moral, physical and financial safety of the corporation, yet the application of these functions is wide and varied. Local and municipal

purpose than that suggested by the encouragement of the organization of improvement associations within the limits of the city. This is as legitimate a purpose as any scheme for public welfare can be. It is therefore suggested that members of this organization ought

(1) To become familiar with the plans for home and neighborhood beautifying of other cities through a committee on improvements.

(2) To encourage the organization of improvement societies in the city, having one for each neighborhood if the city be large enough. It is necessary that some one take the initiative and give the movement the benefit of well organized beginnings. It is important, too, that there be a body easily reached, to which definite information may go till the improvement society has found its place. What more natural than that representative organizations of the city's interests should foster a definite movement of this kind?

(3) To assist by influence, counsel and funds in practical organization of improvement societies among property holders. A society of this kind will do better if given sufficient means from the beginning to follow up its work of encouragement, prizes for good work, examination into conditions, dissemination of information, and the score or more of directions into which it may extend its efforts.

(4) To bring proper pressure to bear upon factory owners to assist in the beautifying of their neighborhoods, thus emphasizing the attractiveness to the sturdy laboring classes of the city itself. It may be difficult to attain this directly, either by law or by effort of commercial organizations, but neighborhood organizations—which interest employer and employe—will often attain it. There is no longer any reason for the existence in most cities of the ugly, unsightly and disgraceful appearance of

many factories and their neighborhoods. Unite the people of the neighborhood for a common purpose, interest the factory owner at least to the extent of cleaning and beautifying his own premises, and the results are soon attained.

5. Encourage the union of local societies with other societies through the league, for mutual information and assistance. Nothing will bring better return than this work and contributions for club funds for the purpose. The difficulty in the past has been the iso-

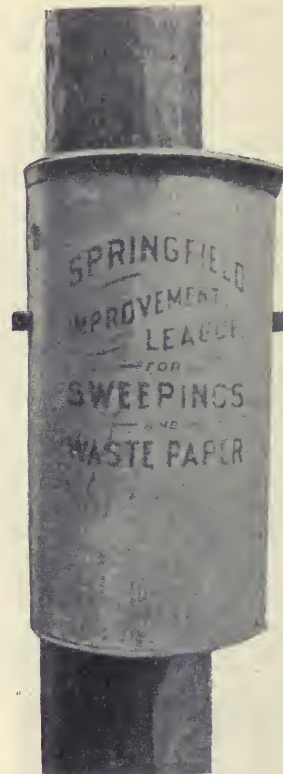


FIG. 2636. WASTE PAPER RECEPTACLE,

Devised by one of the Members of the Springfield, Ohio, League. The advantages are a cover with spring hinge, and the ease with which the can be lifted from the pole and replaced. The back of the can is shorter than the front which makes it fall over if not hung in place.

lation of the organizations and the waste of energy through lack of knowledge of what others attempted. It is the aim of the National League, with the encouragement of commercial organizations and local societies, to unite their efforts and to disseminate information.

With such a union of effort of all local bodies organized for the city's good, there must come some excellent results—and the city's good name greatly magnified. Numerous are the illustrations of its excellent advantages, proving that the reasons here given are not theory but practice.

In this present age great interest is mani-

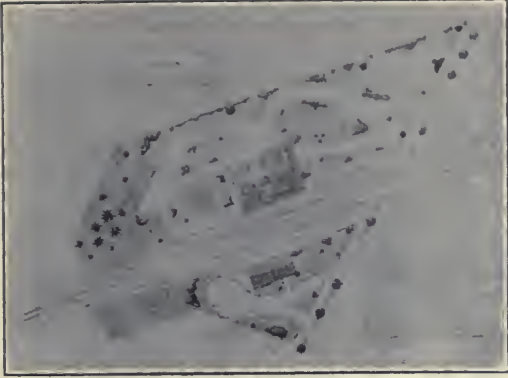


FIG. 2637. MILLIS, MASS., RAILWAY STATION
GROUNDS.

festated in railway stations and the grounds about them. The more cultivated tastes of the traveling public demand beauty of surroundings. Whether that beauty be simple or ornate depends upon the situation. The public at large does not care to enter a train from a marble palace in the city and be dumped on a dark, ill-smelling platform at

its home station, the station itself looking like an immigrant depot. Railway companies are awakening to a sense of their responsibilities in this regard, and a few well planned stations and grounds may be found in the United States. The Millis, Mass., railway station and the grounds about it were designed by Mr. Edward P. Adams, landscape architect, of Boston, Mass. The drives are graceful, and so arranged that a blockade of vehicles cannot occur. Persons in carriages alight under cover. Shelter is provided for horses. A novel but excellent feature is the library and reading room on the second floor, for passengers and employees. This, and the pretty little parks about the station proper and about the freight house across the tracks, makes waiting for a train a thing to be born with equanimity. Instead of an eyesore to this village of less than a thousand inhabitants, the station is its pride.

A RELIABLE ROSE.

ONE of the most beautiful and reliable roses in cultivation is the Mrs. John Laing. My experience with this meritorious variety in the nursery has been very pleasant and satisfactory in every way. I had it planted in nursery rows with other valuable sorts and was surprised and delighted to see it bloom so strong and continuously. The roses are large and very full, of a grand, clear bright pink color. The fragrance is delightful, and this, with other attractive features, makes it a general favorite with those who see it. The plants are

strong, vigorous, and begin to bloom early and continue to bloom until very cool weather. Last year my bushes were full of buds and others just opening, October 16. During several very cold nights, frosting and freezing water slightly, the roses were not affected. To keep for very late flowers I place a few paper bags over the buds at night and tie them on to prevent being blown off. The Mrs. Laing has great beauty and exquisite fragrance, combined with hardihood and a propensity to continuous blooming.—*Farm and Home*.



FLORAL NOTES FOR AUGUST

BY

WM. HUNT,

O. A. C., GUELPH.

FREESIAS.—Bulbs of these sweet-scented little Cape flowers should be potted now so as to be sure of a few sprays of their deliciously perfumed blossoms during the Christmas holidays. Plant about five bulbs in a four or five inch pot in fairly light rich loamy soil. The bulbs should be planted so that the pointed tips are just under the surface of the soil. A few pieces of broken pot, gravel, or coal cinders may be placed in the bottom of the pot before filling in the soil, so as to secure good drainage. Give the soil a good watering after the bulbs are potted, but do not give them any more water until the soil shows signs of dryness. Stand the pots outside in a partially shaded position where they do not get the full heat of the sun's rays during the hottest part of the day. As soon as the grass-like foliage begins to appear above the soil, water may be given them more frequently. Take the pots indoors early in September before the frost touches them. There is nothing more ac-

ceptable in a window of plants than a pot of freesias when in bloom, and the bulbs are so inexpensive and easy of culture that no plant lover should be without a pot or two in the window or greenhouse. The bulbs also under proper treatment renew and even increase in numbers from year to year, a fact that makes them of even more value than many of the winter and spring flowering bulbs.

EASTER LILIES.—These showy sweet scented favorites, that are in such demand through the winter, and more especially for Eastertide decorations, have not of recent years been such an unqualified success as they were fifteen or twenty years ago, when *Lilium Harrisii* could frequently be seen six or seven feet in height and bearing eight or ten of their beautiful white blossoms, but recently plants three or four feet in height with even three or four perfect blooms are oftentimes difficult to obtain. The lily disease is responsible for this change, and there seems to be no certain remedy for the dis-

ease at the present time. If any of our readers, however, desire to try a bulb or two of either *Lilium Harrisii* (Bermuda lily) or *Lilium longiflorum*—which is considered by many growers to be less liable to disease than *L. Harrisii*—they should be secured as early as possible to have them in flower at Easter in the window. A seven inch pot for the largest size bulb will be necessary, whilst a six inch pot will do for a second size bulb. The method of potting, soil, and future treatment as recommended for the Freesias will suit the lilies mentioned.

WINDOW BOXES AND HANGING BASKETS.—These will require plenty of water, as the plants will by this time have a mass of roots to absorb the moisture, as well as a large amount of growth to support. The soil in them will also have become very much exhausted. An application of liquid manure, made from fresh cow manure prepared as described in July number of *Horticulturist*, will be found a good stimulant that will help to carry the growth and beauty of the plants through until late autumn.

PANSIES.—If early blossoms of these pretty bewitching flowers are wanted early next spring, the seed should be sown now. Sow the seed in a shallow box, about two inches deep and of required size. Place the box in a partially shaded place until the plants have attained their fourth leaf, when they should be transplanted into a cold frame, where they can be given the protection of a sash, or of even a few boards during severe weather. A box about ten inches deep and minus the bottom boards, placed over a good rich spot of soil in the garden will answer very well to winter a dozen or two of pansy plants in.

PELARGONIUMS.—Plants of these spring

flowering favorites should be cut back some time in August. Prune them back to within an inch or so of the two-year-old wood. Give them very little water, keeping the soil barely moist until growth commences. As soon as the new growth is about a quarter of an inch in length, they should be repotted. Shake all the soil from the roots and repot them into soil to which nearly one half of fine sharp sand has been added. Give them a size smaller pot than they have been growing in, and do not over water them until growth has well started. When the growth is about two or three inches in length, repot them into pots two sizes larger, using a rich loamy compost and some pieces of broken pot for drainage. The new growth can have the tops pinched off once or twice during the winter if it is inclined to grow spindled. Pelargoniums, or Lady Washington geraniums as they are sometimes called, are very liable to attacks of aphids or green fly when in the window. A strong solution of tobacco water, or fumigating the plants with tobacco smoke, will destroy these pests to window plants. Keep the plants outside until early in September until danger from frost is probable. The shelter of even a sash and frame for a few weeks in early autumn is often preferable for many other plants besides pelargoniums, as oftentimes we have several weeks of beautiful warm weather after the middle of September, when many plants that are to winter in the window or greenhouse will do much better out in a cold frame or somewhere where they can be protected from slight frosts if necessary. But care must be taken to watch the thermometer closely for sudden changes in temperature, or possibly the plants may be exposed for just one night too many and be nipped by the frost.



FIG. 2638.

TUBEROUS ROOTED BEGONIAS

BY

WM. HUNT,

O. A. C., GUELPH.

AMONG the almost innumerable varieties and types of flowering begonias now grown, there is none more deserving of attention or more beautiful for summer decorative purposes than the tuberous rooted varieties. Whether grown as pot plants entirely, or started early in the season in pots and then transferred to the flower bed or border later on; or if even the dry tubers are put at once into the open ground at the proper season, they will, with only average attention and care, and a fairly suitable position given

them to grow in, give a grand display of their beautiful and showy wax-like blossoms, both single and double, and in such a variety of shade and color that well repays the flower grower for the comparatively little skill and care required in their culture.

And yet how very few amateur plant growers there are who are thoroughly successful with them. Some can, however, grow them to perfection, as is evidenced by the splendid specimens that are seen at almost every floral exhibit that I have had the pleasure of judging; specimens that had

been grown entirely in a window, or in a sheltered position out of doors, or perhaps in a cold frame.

The collection of Tuberous Begonias at the O. A. C. was possibly the one feature that attracted the most attention and excited the most admiration amongst the forty or fifty thousand excursionists who visited the college greenhouses during the recent June excursions. The fact of the intense interest shown, and the many questions asked as to the culture of these begonias, has led me to write the following brief notes regarding their care and treatment. The accompanying cut (Fig. 2638), from a rather poor photograph of a group of these plants at the O. A. C., will give some idea of the floriferous habit and the beautiful foliage of the tuberous begonia.

SELECTING TUBERS.—Select good, firm, sound tubers; pulpy or soft tubers seldom produce good healthy plants, even if they grow at all. The best time to procure tubers is when they are dormant and just before they start into growth. Late in March or early in April is about the best time to secure them, as that is the time they start their growth as a rule, after having been kept dormant and dry all the winter.

STARTING TUBERS.—Start the tubers in April in small pots. A pot about three times larger in diameter than the tuber will be about the size. Use plenty of small broken pieces of pot or fine gravel stones for drainage in the bottom of the pot, one-third full will not be too much. Use a mixture of soil composed of one-third part of fine sharp sand and two-thirds of light, rich loamy potting soil. If soil of a heavier nature is used, use fully one-half sand, well mixed with the same quantity of soil. When potted, the top of the tuber should be about on a level with the surface of the soil. Give sufficient water to thoroughly moisten all the soil in the pot, and do not give any more water until the soil shows signs of dryness,

but do not on any account allow the soil to become dust dry. Keep the soil barely moist until growth has well commenced, when water can be given a little more freely. Stand the pot in a warm place in the window or greenhouse, but in such a position that the sun does not strike directly on it, especially during the hottest part of the day, as the sun will scorch the leaves, more particularly if they are damp from recent watering.

In about three or four weeks from the time of starting the tubers they will probably show a little growth. As soon as the growth has attained to about three inches in height, the tubers will most likely have grown a sufficient supply of roots to allow of the plant being repotted. This can be ascertained by carefully knocking the plant out of the pot to examine the roots. If a good supply of roots has been grown, the plant should be potted on into a pot about two or three sizes larger. A well established and nicely rooted plant will require a pot fully three sizes larger than the one it was started in.

REPOTTING.—In repotting use a little less drainage; an inch of drainage will usually be sufficient. Good loamy soil, fairly well enriched with dry cow manure and about one-sixth part of fine sand mixed with soil will make a good soil for these begonias to grow and flower in. Press the soil fairly firm around the roots of the plant, being careful not to break the ball of earth around the roots or damage them when repotting. Water the plant thoroughly once after repotting, and do not give water again until the soil shows signs of dryness. When growth has freely commenced the plant can be watered more frequently, but too frequent and too heavy waterings before growth has well commenced, and allowing the sun to strike directly on the foliage, especially after watering, are oftentimes the cause of failure in the culture of begonias.

AFTER TREATMENT.—A temperature of 60 to 65 degrees and a partially shaded position, well sheltered from strong draughts and high winds suits these begonias, whether they are grown in the window or out of doors. Sweeping winds are even more harmful than the sun when the plants have become hardened, but partial shade in the hottest part of the day is very beneficial if good blooms and clear, clean foliage is desired. A cold frame covered with a sash thinly shaded with a coat of whitewash and the frame placed so that it slopes and faces towards the north will suit tuberous begonias very well during the hot summer months. The sash can be removed during the hottest part of the day to advantage, more especially if the plants are shaded slightly from the direct rays of the sun. Plenty of ventilation by tilting the sash should be given both night and day, as these begonias dislike a too close humid atmosphere to grow in. Partial shade, careful watering, plenty of air, shelter from winds, and a fairly rich light loamy soil are the main essentials necessary for the successful culture of the tuberous begonia.

DRYING OFF AND RESTING TUBERS.—Towards fall, when the flowers and foliage begin to look shabby and rusty, less water should be given the plants. When the foliage has become nearly yellow and the flower stems begin to decay, no more water should be given them, but they should be removed to a dry warm shed and kept quite dry and free from frost. A dry temperature of about 45 or 50 degrees suits the tuberous begonia splendidly when dormant in the

winter, but at no time should either the growth or the tuber be exposed to a temperature below 40 degrees.

Where a number of these begonias are grown it is customary to shake the tubers out of the soil and pack them in sand, charcoal, etc., but I have had the best results by allowing the tubers to dry off in the soil they have grown in, and by placing them away in the pots in a dry cool temperature 15 or 20 degrees above freezing point, and keeping the soil perfectly dry during winter until the following spring, when they are shaken out of the pots and treated as I have described.

I have omitted any mention of the starting of these begonias from seed, as I consider their culture from seed is not only a delicate operation to be successfully carried out without the aid of a green house or at least a sash and frame, and as the tubers can be purchased very cheaply when dormant and give quick results, it is scarcely worth while waiting for the more tedious and uncertain results attained when the plants are raised from seed, as it would take at least two seasons before seedling plants could be had in flower if the seed was started in pots in the window.

Tuberous rooted begonias are decidedly an amateur's flower, and are much easier grown than many varieties of window plants if given only fair treatment in their culture. Too much water, when the tubers are first started, and improper drainage is too often the cause of failure in the culture of the tuberous begonia.

THE HOME GROUNDS

A FRIEND, who has spent some money and much time on his home grounds, is not satisfied with the result, as the effect is not what he supposed it would be. He supposed that a lawn primarily meant an expanse of grass surrounded and partially covered with trees and shrubs. We say, "we will walk on the lawn," and the thought of soft, velvety, close-shorn grass is immediately present. William Robinson, the noted English landscape gardener, speaks of it as a garden, while to give the true idea of it to people on this side of the ocean we must call it the home grounds. A good lawn includes trees, flowers, shrubs, rocks in some localities, etc., and the value and effect of a lawn consist in the arrangement of these things. Mr. Robinson advocates, in the garden, the treatment of the "garden" in a manner which will harmoniously unite it with the landscape beyond, thus making a beautiful whole of the near and distant surroundings of the house. The house must be architecturally in harmony with the locality, and then the grounds, before and behind the house, if there be room, must correspond with the architecture of the buildings, and with the topographical and other points of the landscape to be seen from that point. If everything is in harmony, according to nature's work there, the lawn effects will be satisfactory to the artist and to the unskilled as well. The front doorstep is a good point ground. And if there be any landscape before which to study the lawn, and its back behind the buildings it must be studied from the back stoop, if there be one.

VIEWED FROM THE FRONT DOOR.

The planting of the lawn, therefore, must be planned from the view at the front door. In general terms, it may be stated that, as a

rule, the front lawn must be an area of grass, bordered by trees, shrubs, and sometimes flowers. The friend mentioned planted his trees and shrubs mathematically distant from each other, and in regular lines. The trees have grown to a good size, and now all distant points are shut out from view, and the turf of the lawn has become spotted and uneven in color. He forgot when he planted his choice trees that they would some time grow to large size, some of them at least, and so now he is "cabined, cribbed, confined" in a shady grove, with no outward look. The ground was made fertile and deeply worked, and the plants were well and carefully set, where himself and his hired man decided they would best be placed. The future prosperity of the trees was well provided for, but no account was made for ultimate size. Any good landscape gardener would probably have suggested to him that with care such trees would grow tall and wide, and that they should have been so planted that the beautiful distant views should never be completely hidden. The popular notion that a lawn is a place for us to treasure beautiful trees, flowers and shrubs, is entirely misleading, being too narrow, so that in attempting to get and preserve beautiful things we deform our grounds, whether they be large or small. We are apt to plant too much, and to spoil beautiful pictures which would be far more attractive than the possession of rare plants, often too crowded to preserve their natural beauty and real value. Open outlooks are frequently lost through the ambition to have a fine specimen of some rare tree or shrub.

TO BROADEN THE OUTLOOK.

As far as practicable, the lawn should be so planted that it may seem as wide as possible to be made. Planting the borders in clumps with peninsulas of grass running

into and apparently behind them makes the lawn look as if it extends outward indefinitely, adding materially to the broad effect where the area is decidedly limited. These points of turf can be put where there is a line of view to a beautiful distant landscape, and so be made doubly useful. A New Hampshire man whose lawn was large and set full of trees and shrubs, found that his house was too much shaded for good health. So he employed an intelligent Boston landscape gardener to advise him what best to do to keep a good lawn and also plenty of sunshine. Most of the trees around the outside were left, some needing a little pruning; the trees in the central portions were dug out, and the shrubs were dug out and planted in masses in the corners, leaving an open area of grass which looked larger than the original lawn, and giving unobstructed views of neighboring hills and mountains in three directions, and yet when the grounds were viewed from a neighboring hill they appeared to be as shady as they were before any improvements had been made. A berberry hedge along the street in front was left, so that the effect of an enclosed English "garden" was retained, while the apparent size of the grounds was doubled, as viewed from the street. A lawn mentioned by Jacob Riis in his "Making of an American," as "decorated" by cast-iron dogs, has recently had half its trees cut out, and yet those left are so scattered about the lawn that it impresses the observer with a sense of confinement, or crowding, while a neighbor's lawn, not two-thirds the size, is so planted that it appears much the larger of the two. Just beyond is a lawn cut in two by a row of hydrangeas and golden elders, so that from the street the house appears to be set in a small lawn back from the front, more retired and cut off from view than the New Hampshire one not so large, with its berberry hedge in front. The general effect is spoiled, as far as landscape

beauty is concerned. Such instances are too common, and from them one may learn how not to do it.

TREES SHOULD BE IN HARMONY WITH SURROUNDINGS.

It makes little difference as to what trees and plants are used, provided they are so placed that they are in harmony with the surrounding conditions. But it is generally better, in order to secure satisfactory results in the long run, to use trees and shrubs native to the locality. The white spruce of Northern New York is quite sure to live to a much greater age, and to retain its symmetry, than the Norway spruce, which is generally used because it grows faster, costs less to propagate, so is cheaper at the outset. In 30 to 50 years the Norway spruce will begin to fail, while the native sort will scarcely have attained maturity of growth, and then it will retain its beauty another half century or more. In arranging the trees the largest (when full grown) are to form the background of the plantation, being careful not to plant so as to hide fine distant views in the future. Then, as far as color is concerned, the darkest foliage should be farthest from the viewpoint.

FLOWER BEDS.

The flower beds, if any, should generally be placed against the foundation walls of the house, or along the borders of the shrubbery. A small lawn will look large and wide if no shrubs or flower beds are cut into the expanse of turf, because the eye has no scale of measurement, while if two or three flower beds or mounds of cannas or bulbous flowering plants are set in the middle of the lawn, the ordinary eye easily estimates the distance between the beds and the border of the lawn, and so it looks limited. The more the beds or shrubs are multiplied, the smaller seems the lawn to the inexperienced eye. In all cases, whether at the first plant-

ing, or in making changes, the matter should be studied up from the front door steps, or from the most common point of view for the family, and the work must be so done that there shall be an unbroken expanse of green in the middle, with the trees and shrubs and flower borders around the outside, thus getting the biggest handsome picture possible under the circumstances. We do not want a haphazard, inartistic dotting about of plants on our lawns, nor a Parisian rug, nor a set piece of mathematical patchwork. Neither, on the other hand, do we want a tangled wildwood. We want a solid background of dark green, with a scattered mass of lighter green flowering branches and the shrubbery nearer the eye as a stand or set in our favorite place at the

house. If the neighboring lawns or fields are naturally or designedly beautiful, the boundary lines of the home grounds can be set sparsely with strips of grass between, so as to make the lawn seem to extend far away. But if the adjoining areas are unsightly or neglected, then the boundary should be set so thickly as to hide the nearby property, except where there is a fine distant scene, and then low shrubs can be made to hide the near undesirable spots. In all cases the arrangement should be as unartificial as possible, unless the buildings are large and architecturally ornate, when an artificial planting arrangement is proper and often desirable.—*D. A. A. Nichols, in Weekly Illustrated Buffalo Express.*

RUDBECKIA, GOLDEN GLOW.

IN the year 1898 I photographed a group of Golden Glow, Rudbeckia, and the picture is here reproduced. This species has now been widely disseminated, forming one of a trio of most excellent recent introductions, *Hydrangea paniculata grandiflora* and *Clematis paniculata* being the other two. It is a singular fact that they all bloom late in the season, when most needed, and are all of the easiest culture. Each requires an ample supply of moisture for the best results, and are perfectly hardy. Luckily they combine three divisions of plant life, the shrub, the perennial and the vine. Japan furnishes two of them and the western prairies the third, the *Rudbeckia laciniata* fl. pl.

We are all familiar with the black-eyed Susan, the *Rudbeckia hirta* of the botanists. *R. laciniata* is a near relative, and in its typical form somewhat resembles it, except that the disk flowers, those minute blooms covering the cone, are a dull greenish color, instead of yellow, and the whole flower larger.



FIG 2640, GOLDEN GLOW.

In the doubling up of the Golden Glow, these disk flowers have changed into ray flowers. The black-eyed Susan will thrive in dry soil, but the other being indigenous to the borders of swamps and low meadows, requires a fair amount of moisture. The origin of this double form is yet unsolved. About 1894 John Lewis Childs found it in his grounds among some unknown plants sent him by some of his customers. From it he increased the stock that has, in the main, reached the gardens of the United States and Europe.

While I bought three plants in the spring of 1896 from Mr. Childs, I had three given me in the fall of 1895 by Mr. Jensen, the superintendent of Humboldt Park, Chicago, who called it a double *R. laevigata*. Mr. Childs gave it the name Golden Glow, and I bought from him in order to compare it with those received from Mr. Jensen. They proved identical. Mr. Jensen had seen, in the fall of 1895, a large clump of it in the garden of a German in Chicago who had received it a year or so before from a relative, and traded some geraniums for a few roots. This traces it back to 1893 or 1894. At this later date it was blooming both in Mr. Child's place and in Chicago.

A writer in an English paper about a year ago claimed that it was introduced to English gardens nearly twenty years ago under the name *R. laevigata*. Mr. Falconer in an editorial note in *Gardening* dispels this illusion in a clear and forcible manner. The mere fact that a plant so attractive in all its parts, so hardy in constitution, so readily grown and rapidly increased, was unknown in this country until within the past few years, even in the largest collec-

tions and among the most intelligent professionals and amateurs, is evidence enough that it was not known in English gardens twenty years ago.

The group illustrated is composed of three plants obtained from Mr. Childs which were placed in their present position in the spring of 1896. Some young plants from the outside of the group have been taken away. The group is supported and protected from damage by the winds by an iron hoop four feet in diameter placed about four feet from the ground and fastened to four strong stakes set among the plants. This is put in place when the plants are some five feet high. The hoop—which is of round iron—is slipped over nearly all the plants. Enough of the outer row of stalks are left outside the hoop to hide it and the stakes; these are then distributed evenly along the hoop and tied loosely, allowing each stock three or four inches play. When a heavy rain, accompanied by winds, comes they are apt to become top heavy and may break. In such cases I run temporarily a heavy but soft string around the whole group, well up towards the top, and draw it in quite closely—thus bunching it as one would a sheaf of wheat. This is removed when the storm is over and the blooms dried off. In this way one stalk supports the other and damage is seldom done. It is such a striking ornamental group upon the lawn that it pays to devote some extra care to it. The drip from a lawn hose connection is carried under this group by tiles, thus affording it an extra amount of moisture. Where plants are not given enough water the blooms are much smaller.—*Gardening*.

BUDDING ROSES

ONE of the easiest and best ways to propagate roses is by budding. I have the *Hermosa*, and desiring to make more plants of the same kind, thought I would try budding it on the wild rose; having one near by, I inserted two buds of the *Hermosa* about the middle of July, and in about three weeks they measured ten inches in height, and had buds almost ready to expand; since then I have given them but little care and attention, but they still continue to bloom, and are in good condition for winter. Although I had never heard of any one budding the rose, my experiment proved a grand success.

The process of budding is the same as that of the peach, pear, apple, etc., which has been explained through the columns of this paper before, but for the benefit of new subscribers, or those who perhaps did not observe closely the process, I will give an explanation with illustrations.

Select a bud from the rose you wish to propagate, and cut about one-fourth of an inch above and below the bud, taking out an elliptical piece with a little wood beneath it, as shown in Fig. b.

For the stock, take any hardy or wild rose, cut a T-shaped incision through the bark near the roots (Fig. a), carefully raise the ends or bark of the incision and insert the bud; then wrap firmly above and below the bud with a strip of cloth about one-fourth of an inch in width, commencing at the bottom and passing above the bud, returning again and tying just below, covering all but the bud, as shown in Fig. c.

In about ten days after budding, if done in spring or early summer, unwrap it, and if the operation has been successful, which it is most sure to be if properly done, cut the old stock off about two inches above the bud; and when it has made a new shoot, tie

it to this stump to make it grow straight.

If budding is done in August or later, re-wrap in about ten days, and let the bud and stock alone until spring, then cut off the stock above the bud, and encourage growth. The bud will not start till the following spring, though its union with the stock can readily be distinguished by its plump and fresh appearance.

Buds of different roses, red, white, crim-



FIG. 2641.

son, etc., may be inserted in a single stock, thereby producing a rose tree of many colors.

It is not necessary to bud on the wild rose only, but if you have some other single rose you wish to improve, insert a bud or buds of some nice variety, and I think you will be pleased with the result.

Every lady reader should try this mode of propagating, for it is very simple, and easily done, and you can have a rose ready for bloom in the same length of time it would require a cutting to form roots.—*Farm and Fireside*.



The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January. If possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

WELCOME HOME.

It has not yet been announced in the Horticulturist that the Editor has been absent for the past three months enjoying a honeymoon in Europe. We are pleased to state that after an enjoyable tour of the Old World, Mr. Woolverton is expected to return early next month, when he will resume his accustomed charge of our journal. It is not too late, on behalf of all the readers of the Horticulturist to wish its home-coming editor many years of personal prosperity and happiness, as well as added years of usefulness as its popular and efficient editor.

THE SPRUCE GALL LOUSE.

SIR,—Your attention has no doubt been directed to the fact that many spruce trees, widely used throughout the province for ornamental purposes, are dying. In some cases the limbs begin to die

next the trunk and extending gradually out to the tip, and in other cases the outer portion of a limb will die first and then the trouble will gradually work inward till the limb is quite dead clear to the trunk. Certain limbs are attacked while many others remain quite green and healthy looking, but gradually limb after limb is attacked until the whole tree is destroyed. Is this caused by some insect pest, or what is its cause—and what is the remedy? I shall be very greatly obliged if you will favor me with any information which will enable me to save some fine, well grown trees on my front lawn, which are being attacked in the way I have described.

Oshawa.

L. K. M.

Answered by Prof. Wm. Lochhead, O. A. C., Guelph.

It is difficult to state definitely the exact cause of the dying of the spruce trees from the description, but I venture to suggest that the cause is the Spruce gall-louse. Mr. M. does not state a characteristic of the work of the gall-louse, namely the gall-like growth on the terminal twigs. The

insect, according to my observations, works on the outside, and not near the trunk. The terminal twigs will often curl from the effects of the unequal growth. In my experience also the limbs do not readily die for some time as far in as the trunk. With regard to treatment of the gall-louse, the infested twigs may be cut and burned about the first week in May, when there is a woolly secretion on the twigs containing many eggs. About ten days later a soap solution may be applied if the cutting has been neglected. These remedies can be used when the number of trees affected is small, and the size also small. When the trees are both numerous and large much can be done by spraying, but nature will often come to our assistance by sending along parasites, which will do more to keep the lice in subjection than all the sprays. We should be pleased to get samples of the dead twigs from Mr. M., for it may be that the gall-louse is not the cause of the trouble in his case.

WOOD ASHES FOR STRAWBERRIES.

SIR,—After clearing up my old strawberry plot would it be advisable to sprinkle unleached wood ashes over it?

G. S. W.

Hawkesbury, Ont.

Answered by Prof. H. L. Hutt, O. A. C., Guelph.

You can seldom go astray in applying plenty of unleached wood ashes upon a strawberry plantation, or in fact upon any of the small fruits. The ashes furnish a large amount of potash and a lesser amount of phosphoric acid. The extent to which the soil requires these can only be determined by making experiments, but usually sandy soils are more or less deficient in potash, and it is upon such soils that ashes give the best results.

TEE COTTONY MAPLE SCALE.

SIR,—I send you a sample of something that is rapidly covering our maples. I, among others,

would be pleased to learn the name and history of the pest.
J. M. M.
Waterloo.

Answered by Prof. Wm. Lochhead, O. A. C., Guelph.

For some years this pest has not been destructive, but this season it seems to have gathered force, and is proving quite serious in some sections. Alarming reports come from Woodstock, and Waterloo is becoming anxious as to the effect this pest will have upon the maples.

This insect is quite conspicuous in early June on infested trees with its cottony secretion. This waxy substance is secreted by the female at the time the eggs are being deposited, and forms a protective covering for the eggs. At one end will be noticed the oval, brown scale, the remnant of the mother insect, for the insect belongs to the family of scale insects (Coccidæ), to which also belongs the terrible San Jose scale, about which much has been said, done, and written during the last few years.

The eggs laid by a single scale are very numerous, and begin to hatch about the end of June or the beginning of July. At this time swarms of minute lice may be seen crawling on the infested twigs. They soon fix themselves to the bark by inserting their beaks, and begin to suck the sap of the tree. In a short time the young begin to form scales of their own by secreting a waxy substance through certain pores on their body. In September they become adult. The males die before winter, but the females migrate from the leaves to the twigs, where they remain all winter. In spring the females grow rapidly, and the eggs are laid, as already described, in the cottony sack in June.

With regard to remedies, it may be said that whenever a few of the cottony sacs appear the best plan is to cut off and burn the infested twigs, for by doing so the thousands of eggs will be destroyed.

However, when, by reason of numbers, this operation becomes impracticable, resort must be had to spraying solutions. Kerosene emulsion and whale oil soap solutions are perhaps the most effective. The standard kerosene emulsion should be diluted with ten parts of water if used alone. Some authorities recommend the use of the mixture—the standard emulsion is diluted with one pound of fish oil dissolved in ten gallons of water.

The best time to apply the mixture is about the first or second week in July, when the young lice emerge from the eggs. They are then easily killed. Winter or fall treatment is also valuable. The same substance may be used, but the solutions should be stronger than those used in summer.

In some cities where the cottony scale made its appearance good results were se-

cured by applying a strong stream of water against the cottony sacs when they contained the eggs, and before these hatched.

By reason of the abundance of parasites this pest is seldom troublesome more than two seasons.

PROPAGATING CLEMATIS.

SIR,—I have a thrifty Clematis Jackmanii. Can I propagate it by layering, and when would be the best time? G. S. W.

Hawkesbury, Ont.

Answered by Prof. H. L. Hutt, O. A. C., Guelph.

The Clematis can be readily propagated by layering the young shoots any time now after the wood has become somewhat mature. The new vines should be covered with a couple of inches of rich earth and should be kept moist until the roots have formed.

Our Book Table.

PROCEEDINGS OF THE NEW JERSEY HORTICULTURAL SOCIETY FOR 1903.—A verbatim report of 265 pages of the 28th annual session of that society held in January of this year. This report contains much valuable information, given in the form of questions and answers, and the promptness with which it is published makes it of additional value to those interested.

THE 28TH ANNUAL REPORT OF THE ONTARIO AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM FOR 1902.—This report is made up of seventeen parts, written by the heads of the various departments, and contains valuable information on a wide range of subjects. Probably that of most interest to our readers will be found in the Report of the Biologist and Horticulturist. A copy of this report can be obtained by applying to the Department of Agriculture, Toronto.

THE WOODLOT, A HANDBOOK FOR THE OWNERS OF WOODLANDS IN SOUTHERN NEW ENGLAND. (Bulletin No. 42, Bureau of Forestry, U. S. Department of Agriculture.) This is another of those valuable publications on forestry which the U. S. Department of Agriculture sends free to those interested in the care of private woodlands. The purpose of the bulletin is to show how second growth woods should be treated in order to yield larger returns in the long run than is possible under other methods. Thirty full page diagrams

are given, showing examples of typical cuttings in thinning timber.

THE NINTH ANNUAL REPORT OF THE FRUIT EXPERIMENT STATIONS OF ONTARIO.—To those interested in fruit growing in Ontario this is one of the most valuable reports published. It contains reports from fourteen fruit experiment stations, in as many different parts of the province, on all classes of fruits grown in the country. Careful notes are given on varieties new and old, and many of the newer ones are shown in beautiful photographic illustrations. This report can be obtained free upon application to the Department of Agriculture, Toronto.

LECTURES ON FORESTRY, BY B. E. FERNOW, LL.D.—This is a little booklet of 86 large pages, containing the ten lectures on forestry delivered by Dr. Fernow at the Kingston School of Mining last winter. The lectures are excellent, and cover in a general way the whole subject of forestry. It is also well illustrated and is well worth the price at which it is offered, 25c. The writer of the introduction, however, makes a mistake in trying to give Queen's University the credit for thus being the first to make a beginning in Forestry education in Canada. He probably was not aware that forestry has been regularly taught at the Ontario Agricultural College for the past twenty years.



FIG. 2642. CHENANGO.

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CHENANGO

(CHENANGO STRAWBERRY, SHERWOOD'S FAVORITE.)

BY THE EDITOR.

MANY years ago, when a boy visiting his grandfather's farm on the banks of the Chenango river, at Earlville, Chenango Co., N.Y., the writer remembers being shown an old tree, laden with apples, which the old gentleman called Chenango and of which he was very proud, counting it the finest eating apple in his whole orchard. We little thought then that one day we would be very much interested in knowing the history of the apple, or how near we were to the town of Lebanon, N. Y., the place of its origin.

Of late years this apple has been coming to the front in Ontario, and has recently been placed upon the model prize list issued under the authority of the Department of Agriculture as being worthy of cultivation, and good samples may be seen every year on the fruit tables of the Industrial Exhibition. Our Russian friend, the late Jaroslav Niemetz, horticulturist of the college at Rovno, Wolinia, on the occasion of his recent visit to Canada, accompanied the writer to the Industrial Fair with an especial eye to study the fruit exhibit, and no variety on the tables seemed to interest him so much

as the Chenango. He took careful notes of its characteristics and requested us to send him scions that he might propagate it in his country.

The apple is certainly a fine dessert apple for use in September and October, for it is beautiful in appearance and very agreeable to the taste. The flesh is creamy white in color, and, in texture, tender and moderately juicy, while the flavor is spicy and agreeable. The exterior is a delicate whitish ground, on which the light and dark shades and stripes of red show up beautifully.

The tree is fairly vigorous and productive, and has the special merit of being resistant to that plague of the apple grower, the apple scab, from which both its foliage and its fruit are free.

We do not advise the planting of this apple in the commercial orchards of Ontario, because it has too tender a flesh to be a good shipper, and we have other September apples which would probably give more certain returns; but for the home garden, to which, unfortunately, many people attach too little importance, a tree or two of the Chenango is very desirable.

Editorial Notes and Comments

THE NOVA SCOTIA APPLE CROP.

IN a letter to the Fruit Division, Ottawa, Mr. J. W. Bigelow, of Wolfville, N. S., gives the following estimate of this season's apple crop in Nova Scotia: According to present prospects there will be a full crop of superior apples, giving over 400,000 barrels for export. Varieties are about as follows: Nonpareil, 60,000 barrels; King, 50,000; Gravenstein, 50,000; Ribston Pippin, 40,000; Golden Russet, 30,000; Baldwin, 60,000; Rhode Island, Greening, 30,000; all other varieties, 80,000.

APPLES VS. STRAWBERRIES IN ENGLAND.

THE folly of keeping Canadian apples until late in the spring with the hope of selling them for export at an increased profit is shown by a recent report to the Fruit Division, Ottawa, by Mr. A. W. Grindley, one of the agents of the Department of Agriculture in Great Britain. Mr. Grindley says: "Prof. Waugh, of the Massachusetts Agricultural Experimental Station, and myself, were looking at some States apples in barrels, arrived 29th June in cold storage. They were soft when discharged, and did not bring much, as they will go off very quickly; besides, who wants poor apples when the market is swamped with English strawberries at their best."

A SHORT FRUIT CROP IN EUROPE.

THE Fruit Division, Ottawa, has received from several of its correspondents in Europe reports showing that the fruit crop is a small one this year, and indicating that there will be an unusually good market for Canadian apples and pears. The Glasgow Herald says: "Apples will be scarce, the destruction by spring frosts having been serious and extensive. If

growers get half a crop on an average they will do well. The prospect, however, varies considerably. In some parts of Kent the trees carry excellent crops; in others hardly any. The same condition of things prevails in Herefordshire, whence the Midland counties are so freely supplied with choice dessert apples. In Cambridgeshire the crop is disappointing, although in parts of that county a fair harvest of apples will be gathered. Many growers will be satisfied if they get a quarter of a crop. Pears have suffered from the spring frosts equally with apples. In some counties the yield will be meagre; in others the crop is a complete failure. Only a third of a crop under the most favorable conditions is looked for."

E. A. O'Kelly & Co., of London, say: "We are glad to state that prospects are very favorable this year for the importation of Canadian fruit, as crops throughout Europe are a total failure. We anticipate that prices will be satisfactory all round for apples."

From Hamburg, Germany, Edward Jacobs & Sons report: "The fruit crop in Europe is this year, generally speaking, short. Should there be no duty on apples the prospects for Canadian are very promising."

Garcia, Jacobs & Co., of London, state: "There has been an almost total failure here of plums and pears, and this year there will be a good opportunity for the shipment of Canadian pears. The latter should be packed in cases similar to those sent from California. That there is a fair crop of early variety apples is a certainty, but they will all be cleared off the market before your fruit is ready for shipment. France, Belgium and Germany are large growers of

apples, and the crop this season is fairly large, but the quality is so poor that they can never really compete with Canadian fruit."

FRUIT GROWING IN THE NORTH.

IN conversation with Mr. Charles Young, our experimenter on St. Joseph's Island, Algoma, a short time ago, he remarked that "One of the ideas which the settlers of Northern Ontario must free their minds of is that fruit cannot be grown in this northern district." The crops of strawberries, raspberries, currants, cherries, plums and apples which he is growing certainly prove that in this part of Algoma, at least, the settler need never be without an abundance of fruit for home use, and in many cases profitably grow it for the ever increasing market at the north.

"The reason," said he, "that so many have failed in their first attempt is because they planted the same old varieties they had been used to in older Ontario."

Mr. Young has about seventy-five varieties of apples under test, and mentioned the following as a few of those he had found the most satisfactory: Duchess, Wealthy, Transparent, Longfield, Gideon, Charlemoff and Alexander. In Southern Ontario these would be counted as only summer and fall varieties, but they are not so here, for Algoma grown Duchess keep till winter, while Wealthy, in any good cellar, keeps in good condition till February.

NORTHERN ORCHARD ENEMIES.

TWO of the worst enemies the northern apple grower has had to contend with have been sun-scald and borers. The latter breed in great numbers in the forest trees, but take the apple tree by preference when they can get them. Sun-scald is a trouble peculiar to the northern and western districts, and is supposed to be caused by the alternate freezing and thawing of the

cambium layer. It shows itself usually on the south and west side of the trunk in dead patches of bark. Trees badly affected seldom recover. The best way of avoiding it is by the selection of hardy varieties, growing low headed trees, and shading the trunk in the winter with a board, corn stalks or other material.

SOUTHERN ENEMIES UNKNOWN IN ALGOMA.

WE have heard it stated that the codling moth and curculio were as yet unknown in Algoma and Muskoka, but were a little doubtful about the truth of the statement. When, however, we find wide awake, observing fruit growers like Charles Young, of Richards Landing, and Arkin Eddy, of Hilton, who have been growing fruit on St. Joseph's Island for over twenty years, and who say that they have never yet seen either of these insects on the island, we must believe that the "Little Turk" and the other afore mentioned barbarian have not yet found this garden spot of the north.

PROFITABLE STRAWBERRIES.

PROBABLY in no part of Ontario can berries be more successfully and more profitably grown than in the north. In the first place the soil is as fertile as could be desired; then too, the snow covers the vines from the beginning to the end of winter, so that no other protection is necessary. The frequent showers afford all the moisture that is needed to bring the berries to a large size without the aid of a summer mulch, and to cap it all the grower can, as a rule, get the top price for all the fruit he can produce. As an example of what can be done, we need only mention that Chas. Young at Richard's Landing, has done this summer. From a patch of not more than a quarter of an acre he cleared over \$200, all of his berries selling right at home for 10 cents per box.

BLACKBERRIES AT CRAIGHURST.

IT has generally been supposed that the blackberry could not be successfully grown much outside of the peach growing sections. With the introduction of hardier varieties, however, it seems that the area over which this fruit may be grown may be greatly extended. No better proof of this could be furnished than the sight of such a plantation as we saw last month at Mr. G. C. Caston's at Craighurst in Simcoe county. The crop on his Agawam and Eldorado bushes was, without exception, the finest we ever saw.

JULY FRUIT CROP REPORT.

A BULLETIN from the Fruit Division, Ottawa, dated August 7th, gives the following report on the fruit crop:

Weather conditions, on the whole, have been favorable for July, and hence there is no marked change since the June report.

Winter apples will be a full crop in Nova Scotia, medium to full crop in Southern Ontario, Georgian Bay and Lake Ontario districts. In Eastern Ontario and Quebec the crop is light.

Early apples are a medium to full crop everywhere except in Quebec.

Pears will be a light crop except in parts of Southern Ontario and Nova Scotia.

Plums are a medium to full crop in all plum growing sections, with not more than the usual amount of rot.

Peaches promise well in Essex and the Niagara peninsula.

Grapes are a medium crop, except in Essex and Kent, where they are almost a complete failure.

THE SCARCITY OF FRUIT IN EUROPE.

ADDITIONAL evidence of the scarcity of fruit in Europe is furnished by a recent letter from Thos. Russell, fruit broker, Glasgow, to Mr. W. A. McKinnon, chief of the Fruit Division, Ottawa. Mr.

Russell says: "The apple crop in England, Ireland and Scotland is a very poor one, while on the continent there is also a very light crop. So far as Glasgow is concerned we shall have to depend entirely on supplies of apples from America and Canada. Pears and plums are also scarce in England, and altogether there is every prospect of a good demand for American and Canadian apples, as there is practically nothing else to come against them this season."

APPLE PACKERS SHOULD BE NUMBERED.

THE Fruit Division, Ottawa, has received from a leading exporter a letter suggesting that a slip be printed in large letters and placed in the top of each package of fruit, as follows:

"You are requested to report any fault you may find in this package to Montreal, Canada.

Packed by No."

This suggestion is right in line with the recommendation of the Fruit Division, that each "boss packer" be given a number, and that this number be stencilled on every package of fruit put up by that packer. In putting up apples in the orchard the number should be marked in pencil near the chime of the barrel, and the branding done later. Mr. McKinnon's forthcoming bulletin on the Export Apple Trade will deal with this question; and the Fruit Division will show at Toronto Exhibition a model brand for apple barrels.

The plan of placing a slip with the packer's number in each package has been largely used by tobacco and other dealers, and has proved a safeguard to the wholesaler or exporter. For instance, it has been found in previous years by apple exporters that barrels bearing their brand and marked as put up by a certain boss packer, say No. 60, were in great demand, while goods similarly branded, except that they were marked

as put up by another packer, say No. 48, were not wanted. This difference in the quality of the fruit may have been due to inferior packing, or to the fact that the second packer was working in an inferior district, but in any case the advantage to the exporter of having a check on the work of his packers is quite apparent.

FRUIT MEETINGS IN BRITISH COLUMBIA.

FRUIT growers in Eastern Canada will be interested in knowing that their brethren in British Columbia are fully awake to the importance of up-to-date methods in connection with their business, and that they ever hope to capture the whole of the trade with Manitoba and the Territories. During the month of July the executive committee of the British Columbia Fruit Growers' Association, accompanied by Mr. Maxwell Smith, Dominion Fruit Inspector, made a tour of the Okanagan country, where several successful public meetings were held. Visits were also made to a number of orchards at Vernon, Kelowna and Summerland, and much valuable instruction was given and information obtained *re* the planting and marketing of fruit.

At the meetings Mr. J. C. Metcalfe, of Hammond, president of the association, gave a resume of the work of the association, describing its aims and objects, emphasizing the necessity of co-operation among the fruit growers of the province, careful selection and honest packing of the fruit, and strict attention to every detail of the business, in order to obtain profitable returns. He called attention to the fact that at the present time British Columbia was supplying only 20 per cent. of the fruit shipped into the Northwest.

At Armstrong Mr. R. M. Palmer, who attended the Ontario Fruit Growers' meeting at Walkerton last winter, told of the sensation caused by the British Columbia

fruit shown there. He said that Manitoba and the Northwest Territories were British Columbia's natural markets, and as British Columbia fruit had already made a good impression there they could in time gain control of that field, if only first class fruit were shipped. Oregon and Washington were now shipping apples to Britain at a profit, and the British market would always be open to the British Columbia fruit grower. He claimed that they had suffered much from inferior nursery stock, and strongly recommended the growing of their own trees, which could be done for one-third of the present cost. He discouraged experimenting with new varieties, and advised planting varieties that had already earned a reputation, and that were suited to local conditions.

Inspector Smith at each meeting explained the provisions of the Fruit Marks Act, and pointed out that all that was necessary to enable any intelligent person to pack his fruit in accordance with its requirements was the possession of a copy of the act and the exercise of care, perseverance, honesty of purpose and common sense. He also urged co-operation in marketing in order to obtain the best results, and pointed out the possibilities of a large trade being established in Japan in canned fruit and pure fruit jam.

At Salmon, Ara., Mr. T. W. Stirling, of Kelowna, mentioned that when he had only two tons of fruit he had great difficulty in selling it, when he had two cars it was easier, when he had twenty cars it sold readily, and when he had thirty-five cars he could not supply the demand; so there was no danger of over-production of British Columbia fruit.

PROSPECTS OF PLUM GROWERS.

THE prices ruling at the present time in Ontario for plums is certainly discouraging to the grower. To-day,

August 20th, we sold fifty baskets of beautiful Burbanks at 15 cents each, while even our Bradshaw and Washington are only worth from 30 to 40 cents.

Mr. A. Rogers, of Sparta, has a plum orchard of 700 trees, but between the rot and the low prices he says he has no satisfaction with it. Indeed, he has decided to root out all except about two hundred Reine Claude and a small block of specimen varieties.

Mr. A. H. Pettit, of Grimsby, thinks Ontario plum growers should not be too much cast down by present low prices, because the great Northwest will require these and many other of our finest fruits, so soon as efficient cold storage cars are provided. "I have just returned from a tour in Southern Manitoba," said he, "and I am told out there that they want all our finest fruit—the best we can grow—and for this they are willing to pay almost any price; but our poor fruit they do not want at all."

Mr. Henry Lutz, a well known New York state fruit grower, who lives near Youngstown, says the low price of the Burbank is due to bad handling; it is almost invariably gathered in too green a stage, and is, therefore, not appreciated in our markets—indeed, this practice is spoiling the markets for Japan plums. The Burbank should not be placed upon the market until it is fully ripe, and if this hint is carefully observed these plums will be much more sought after.

As for our European plums, Mr. Pettit declares they are far superior in flavor to those grown in British Columbia, so that in spite of the advantage that country has over us in first capturing those Northwestern markets there is still hope that we shall win it back by reason of the superior flavor of our fruit.

THE DRY BORDEAUX.

MR. LUTZ has been trying the dry powder spray and is much pleased with it. When applied in a very fine dry

powder he finds that it clings to the tree very well indeed, and is pleasanter to handle than the liquid. The American Agriculturist says:

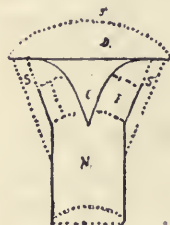


Fig 3

FIG. 2463. DUST NOZZLE.

Dry powders are put on with a blow gun or dust sprayer, and several are on the market. An improvement on the ordinary nozzle, which distributes the powder in a solid stream, has been perfected by the Missouri experimental station, and is shown in Fig. 2643, which represents a cross section. Fig. 2644, which is $2\frac{3}{8}$ times d of Fig. 2643, is a pattern for cutting the tin which, when folded, forms the deflective cone C of

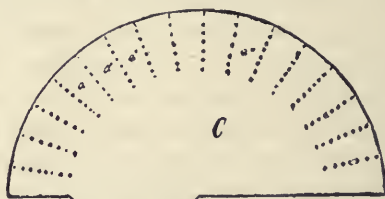


FIG. 2464. PATTERN FOR CUTTING CONE DEFLECTOR.

Fig. 2643. Cut along the dotted lines, and after bending to form a cone solder it together; curve the pieces as upward.

Solder the cone to the circular piece of tin D, and connect the whole to the nozzle of the machine by narrow strips of tin SS, turned edgewise to the opening. This nozzle N fits over the straight nozzle furnished with most of the machines. In Fig. 2643 D is $2\frac{1}{2}$ times the diameter of d , which is the outside diameter of the nozzle furnished with the machine.

A GOOD PEACH COUNTRY.

MR. A. ROGERS, of Sparta, says that the section of country between Aylmer and Lake Erie is well adapted for peach growing. The soil is a black loam with a clay subsoil, on which both large and

small fruits succeed well, especially the peach. He has 50 acres largely in fruit, and grows Clyde and Williams strawberries with great success. Mr. Cohoon, near Port Burwell, has 1,500 peach trees in his orchard, while Dr. Marlatt, near Aylmer, has an orchard of about 1,000.

A DEFINITION OF NO. 2 APPLES.

AT the recent meeting of the International apple shippers at Niagara Falls, the following definition of what should constitute No. 2 grade of apples was adopted: "No. 2 apples shall be hand-picked from the tree; shall not be smaller than $2\frac{1}{4}$ inches in diameter, and of fair color for the variety. The skin must not be broken or the apple bruised, and practically free from scab and other defects. This grade must be faced and packed with as much care as No. 1 fruit."

THE APPLE CROP PROSPECT IN AUGUST.

AT the same convention a report was made showing the size of the crop in the United States and Canada, compared with that actually produced last year. Large percentages were given for Nova Scotia, Virginia, Maryland and Pennsylvania, indicating an excellent crop, where a very short crop or failure existed last year. "The crop in New England, New York and Ontario last year, while large, was of such poor quality that the percentage of No. 1 apples was very small. This year, although the crop is lighter, the prospective quality of the apples is much better, and with Pennsylvania, Maryland, Virginia, West Virginia, Nova Scotia and Pacific coast states more than offsets the small crop and poor quality in the middle west and other states."

ENGLAND A POOR FRUIT GROWING COUNTRY.

WHEN one travels throughout Great Britain he is no longer surprised

at the immense quantity of foreign fruit that is annually imported, nor at the high prices often paid for high grade stock. The climate is so cool in summer, and so often damp from rain or fog, that the fruit does not take on a high color, nor does it ever attain that delicious flavor for which our Canadian apples are famous. The trees themselves are sickly and stunted in growth so that they are not capable of producing a very large yield of fruit. We were surprised when visiting the orchards to see the apple trees almost completely covered with moss, and no attempts made to clean the trunks. One beautiful Cordon apple walled in garden at Melrose was so covered with lichens and mosses that the wood was completely hidden and the tree much stunted in growth. We suggested to the gardener that a scraping and an application of some alkaline wash might help to cleanse the bark and give fresh vigor to the tree; but English conservatism ruled and the gardener said he did not have much confidence in such treatment and seemed to think it scarcely worthy of trial.

THE ENGLISH FRUIT CROP A FAILURE.

AFTER an extended tour among the fruit growers of Great Britain, we have come to the conclusion that the present season is a favorable one for the export of our choice apples and pears. A spring frost of unusual severity played sad havoc with all fruit crops. Not only were tender fruits like cherries almost completely cut off, but even pears and apples were blackened and fell from the trees, leaving scarcely enough to pay for gathering. There is, therefore, an unusually good opening in Great Britain for our early apples and pears, with which the English grown apples usually come into strong competition.

In regard to our winter apples, these are never much affected by the English crop.

and the price is practically proportioned to the American and continental crops. Always, however, there is a strong demand for our superb Canadian high colored crisp winter apples, such as King, Baldwin and Spy, because there are no apples grown anywhere which can compare with them.

Our own observations are backed up by letters just received from English fruit merchants, from which we cull some sentences. For example, Mr. J. B. Thomas, Covent Garden market, London, writes:

I desire specially to inform you that our market is ready to receive your early varieties of apples, and any that you think will stand the voyage will pay to ship to this market.

I think the present exceptionally favorable to try shipments of pears (best varieties) and selected peaches. Both should be gathered directly they have fully developed in size and packed with paper around each fruit in boxes of single layers. The selecting and packing must be done from the tree and at the tree side, i.e., no second handling of the fruit should take place. Such shipments made in steamers fitted with refrigerating chambers from Montreal should give satisfactory results to shippers this season.

Mr. Thomas Webster, of the Manchester Fruit Brokers, writes:

The outlook here for Canadian pears and apples is decidedly favorable because our own crop is very small this time, and there will be a great scarcity to fill up. You will remember that last year your Bartlett pears arrived in bad condition owing to having been packed too ripe, and no doubt will avoid this when you ship again. The Clapp pears did well, and we recommend you to ship liberally of this quality again. Apples such as early Astrachan and Duchess will be wanted, and if carefully packed will show good results.

In packing pears tell your people to always line the boxes top and bottom with excelsior. Last year, in some instances, the lids were nailed down on the bare fruit, and its appearance was completely spoiled.

Mr. B. W. Potter, of Manchester, writes:

The crop of English fruit is an entire failure, and we shall have to depend for our supplies largely upon Canada.

Messrs. Woodall & Co. of Liverpool, write:

The following table, showing in broad general terms the number of reports which have reached us, in which the crop is classed as "over average," "average," "under average;"

and "good," "very good," or "bad," indicate the quality. These figures must of course be taken as indicating approximate truth, and not strict mathematical accuracy, which would be unattainable in this case; they may, however, be taken as substantially correct:

	Ove.	Average.	Average.	Under Average
This year	2	17	248	reports
Against last year . .	12	98	184	"
" 1901	15	90	163	"
" 1900	148	138	16	"

Messrs. James Adams & Son, of Liverpool, write:

Owing to the exceedingly cold spring the fruit crop throughout Great Britain has suffered considerably, and while apples in some orchards may be a fair yield, the crop as a whole will be very short indeed. In some parts of the continent the same climatic conditions were apparently experienced, but fruit all the same is more plentiful there than in this country, and in both Holland and Germany we are given to understand there will be a fair crop. This, to some extent, is a factor that must be borne in mind when indicating the outlook for American and Canadian stock, but as we have before explained the competition offered by continental growths is, after all, not very important. From present aspects it would appear as if apples from America and Canada would be wanted more than ever this season—not only "winters," but "falls" as well—and it is for shippers themselves to say whether the season shall be a satisfactory one or otherwise. When prospects are favorable there is, unfortunately, a tendency on the part of operators to "overdo the thing"—that is by sending forward too many, and not paying sufficient care to the grading and packing of the fruit. We have emphasized the fact repeatedly—that poor apples never sell well, even in a short season—and apart altogether from the inspection of the government officials under the Canadian Marks Act, we do hope that efforts will be directed to the sending forward of good and honestly packed stock only. As is well known, it is quite impossible to form any accurate idea as to how prices will rule, but if shipments are not too heavy then we can safely say that fair values will be obtained.

Here, then, is an encouragement for our fruit growers to take advantage of their opportunity and pack their finest fruit for export.

DO NOT SHIP RUBBISH

UNFORTUNATELY this season there is a great quantity of second class apples, especially of Kings, Baldwins and Greenings. They are under size and scabby, and such stock should not be exported; it should be sold in near markets if sold at

all. But that prince of Canadian apples, the Spy, which was a failure last year, is this year large and clean, and will be a most valuable export apple.

BOXING CHOICE APPLES.

JUST now it is quite a fad with horticultural journals to eulogize the box packing for apples as far better than the barrel, and we fear many will be misled by the advice. The box is all right for extra choice stock, and for that only; but, if growers generally were to adopt it and pack into it all classes of apples, it would be a serious mistake. Ordinary stock sells for most money in a large package, such as the barrel, and it is only the fancy stock that brings more money in a small package. We have been using the bushel box for years for choice high colored Spy and King apples; and, while we have in some cases received exceptionally high prices, our sales have at other times been very disappointing, so that on the whole, counting the extra cost of assorting, grading, sizing and wrapping in tissue paper, we are not so very much ahead. Still, we shall persevere in putting up fancy stock in boxes, and have just ordered 2,000 for the season of 1903.

SIZES OF BOXES.

UNFORTUNATELY for the trade. Canadian fruit growers have not yet agreed upon a uniform sized box for apples, and various sizes have been under experiment. In our early shipments we used a box with eight strong trays, which proved much too cumbersome and expensive. Then for apples we used a plain box, measuring 2 feet x 1 x 1, holding a good heaping bushel. But finding that the Tasmania apples come to the English market in a box holding about forty pounds, we have adopted a box holding nearly the same quantity, but much more neatly made. The dimensions of this box are 9 x 12 x 18.

This size was recommended by a committee of our association at Walkerton last December as worthy of general trial during the year 1903, after which we will be in a better position to decide upon a permanent one.

PROSPECTS OF A FRENCH MARKET FOR OUR APPLES.

WHEN in Covent Garden market, London, England, we were informed by Mr. Garcia that a large part of his immense apple sales were made to French customers, and so important was this feature of his trade that he was now arranging to have a special branch of the firm of Garcia, Jacob & Co. opened in the city of Paris. No doubt the exhibit of Canadian fruit made at the Paris exposition has created a market for our finer fruits, which we ought not to let pass into other hands. We have just received a letter, first addressed to Mr. R. W. Shepherd, of Montreal, which emphasises the importance of the present opportunity. It comes from Mr. Anatole Poindron, Canadian commercial agent at Paris, who says that Mr. Barbier, 3 and 5 Rue Gombourt, Paris, is the largest importer of fine table fruits in Paris, for which excellent prices are obtainable. "In fact," says he, "color, quality, size and perfect appearance are more in question than cheapness."

THE TREE PROTECTOR.

THE Daily Telegraph, Berlin, has the following article on The Tree Protector, which has been widely sold to fruit men during the past few years. We shall be glad to hear from others who have given it a trial:

Various inventions have been put on the market during the past few years for the protection of fruit while growing upon the trees. A device, consisting of a piece of galvanized sheet iron several inches wide, lined with felt, and saturated with some sort of insecticide has come into general use in many sections of the country. This piece of iron is cut the proper length to encircle the trunk of the tree, the

felt lining being placed next to the trunk. The iron circle thus placed is provided with a coil spring which is calculated to keep the felt lining sufficiently close to the tree to prevent insects or worms climbing the trunk and getting at the blossoms or growing fruit. Mr. Wm. Hendry, of Berlin, invested \$8.00 in these devices some time ago. His trees, however, during last summer, showed unmistakable signs of bad health, and this spring a number of his best plum trees are dead. Mr. Hendry never suspected that the insecticide rim was the cause of his trees going wrong until lately, when he found that wherever one of these

rims had been placed around a tree the bark was dead, or nearly so. This is a matter of grave importance to fruit growers, wherever this device has been used, and if the general experience be the same as Mr. Hendry's the loss will be heavy, as large numbers of these rims are in use.

In view of these facts it would be wise for all persons having these rims in use to inspect their trees and see whether they are being injured. It is well for everyone to know that the application of any kind of sticky or gummy substance around the trunk of a tree is injurious and liable to kill it.

THE NEW PEACH DISEASE.

THERE seems to be no end to the troubles that beset the fruit grower, and one of those that has lately taken hold of the peach trees is known by the rather strange name, "Little Peach." It has doubtless been gradually spreading for a good many years, but has only attracted attention within the last two or more years, and in the western part of Michigan, principally.

The principal symptom is the stoppage or failure of the fruit in its growth in the early part of the summer; and when this once takes place there is almost no further development. These little peaches are scattered over the tree, and often on the same branches with those of normal size. It does not seem to occur or take effect equally on all varieties nor to be worse on feeble than on thrifty trees. However, there are other causes for the fruit not developing properly, such as poor soil or lack of tillage, and it is often difficult or impossible to detect the true Little Peach disease from such troubles. In all of them the fruit is more fuzzy than is normal and under sized, but

where there are peaches of both normal and abnormal sizes it is wise to watch for further ailment.

There is a gradual turning of the leaves to a bronzy color and a slight curling. Gradually the tree dwindles, in spite of manuring and the best of treatment and finally dies. All ages and sizes of trees are affected, and the spread is very rapid. The disease breaks out very suddenly, and often in orchards where there is no evident means of infection.

The true cause is yet a mystery. Some think it is the effect of a fungus on the roots while other scientific experts say that this is a mistake and that it is safe to plant new trees where others have died from the disease.

As to remedy there seems to be none but the axe. This often takes the whole or greater part of the orchard. There should be no dallying. It may be that something more may be learned of the cause and cure, but it may result as with the other dread peach disease, the yellows.—*Vick's Family Magazine.*

A WORD ABOUT APPLES

BY

T. H. RACE, MITCHELL.

MR. EDWARD TYRRELL, in his contribution to the Horticulturist last month, pointed out the advantage one has in this world by a good use of his eyes and brains. By the use of my eyes, in running over the province last spring I observed what a general lack of interest there was in the care of the apple orchard; and, comparatively speaking, what a very few new orchards were being set out. By the use of my brains I reasoned that if this state of things continued for a few years longer the supply of good fruit must fall much below the rapidly increasing demand. By a similar use of my eyes I observed but two exceptions to this state of things in all my travels. The first was in the district of Cobourg, Brighton and Colborne, and the second in a stretch of country lying between Wellington and Picton in Prince Edward county. By the use of my brains again I reasoned that the orchards in these districts must be paying the owners or they would not be receiving so much care, and, if they returned a profit for the care they got, orchards in other districts under similar treatment, must also prove profitable. I noticed further, that in these two districts named a large number of young apple trees were being set out and all apparently well cared for. This fact, to my mind, emphasised two things; first, that apples were now grown with a profit, and secondly, that the growers had faith in the future for the apple trade.

Looking at the subject prospectively, there can be no other conclusion than that the demand for apples must increase. With the thousands of settlers rushing into our

northern districts, where fruit can never be much grown; with the prospects of new railroads opening up these newly settled districts and providing them with better transportation facilities; with the advantages to be gained through our Fruit Marks Act and the greater demand for our apples in Europe, where is the pessimist to say that the future is not hopeful? I will venture to say that he cannot be found in the Northumberland and Prince Edward county districts.

Mr. Alex. McNeill, while talking to the people at Orillia, urged that a commercial orchard should consist of not less than four or five acres. Nothing less than this, he said, would be sufficient to command the farmer's attention, and nothing less would warrant the expense of an outfit necessary for the proper care of both soil and trees. The points were well taken, especially applied to sections where profitable apple growing has not yet been demonstrated. But in the district about Cobourg and Brighton I noticed many small plots of apple trees, scattered here and there, and all were well cared for. Every householder, in fact, seemed to regard his two or three apple trees as a source of profit, and I was informed that there were more young trees being planted out in the county of Northumberland than in all the rest of the province. I do not know what the Picton people would say to this, but, excepting the Prince Edward county district, I am quite prepared to accept the statement.

I had no opportunity to talk with any of the owners of the newly planted acres in Prince Edward county, but a resident of the Colborne district said to me: "We

have no fear of over-planting about here: there is a demand at good paying prices for all the good apples that we can grow right here at the packing houses." "What is demanded is good fruit," he continued, "and good fruit cannot be grown without proper care of the orchard, and that is why every man about here cares for his orchard, or what few trees he has about here." Asked if everybody sprayed his trees, he replied: "Yes, if he has but two trees he has them sprayed by arrangement with some neighbor, and nobody

keeps a tree on his premises that is not worth spraying for its fruit; he either cuts it out or has it grafted." This is a very different story from that told us by Dr. Mills at Walkerton of his experiences down among the orchards in the far-famed Niagara district, where the said orchards were mostly neglected and the dead trees still left standing. It shows, at least, the profitable results of care, and also the faith that the prudent grower has in the future outlook for the apple trade.

THE APPLE AS FOOD.

THE apple is the most valuable of all our native fruits, being richest in sugar and albumen. The juiciest are the most digestible, but the mealiest are the more nutritious. Thoroughly masticated, digestion begins immediately, but some people cannot eat them uncooked as a dessert. The apple contains more phosphorus than any other fruit or vegetable. A Brooklyn physician, translating from a German writer, thus discourses on apples as food and medicine:

"The apple is such a common fruit that few persons are familiar with its remarkably efficacious medicinal properties. Everybody ought to know that the very best thing

they can do is to eat apples just before going to bed. The apple is excellent brain food, because it has more phosphoric acid, in an easily digestible shape, than any other fruit known. It excites the action of the liver, promotes sound and healthy sleep, and thoroughly disinfects the mouth. It also agglutinates the surplus acids of the stomach, helps the kidney secretions, and prevents calculus growth, while it obviates indigestion and is one of the best preventatives of diseases of the throat. Next to lemon and orange, it is also the best antidote for the thirst and craving of persons addicted to the alcohol and opium habit."

STRAWBERRIES AT THE O. A. C., GUELPH, 1903.

DURING the past summer eighty-eight standard varieties of strawberries were fruited at the college. This number includes the best out of nearly 400 kinds which have been tested during the past eight years, and a number of new ones.

Some of the most desirable early berries, taken in order of ripening, are: Van Deman, Anna Kennedy and Splendid. Van Deman is a bisexual or perfect blossomed variety, a fairly vigorous grower, with firm, dark crimson, varnished berries, of medium size. It yields well and is very early. Anna Kennedy has pistillate or imperfect blossoms, and must be grown near some other perfect flowered kind which blooms about the same time. The berry is firm, bright scarlet in color, with bright yellow seeds. It is a very desirable fruit for canning, as its flavor is excellent. Splendid is a firm, dark crimson berry, of medium size and of very good quality; the blossom is perfect and the vine vigorous.

Ruby, Burt, Buster, Lovett, Warfield, Williams, Clyde, Haverland, Hero, Echo and Barton's Eclipse are among the best mid-season varieties. Ruby is a fine dark crimson berry, of medium size and good flavor, although slightly acid; it is a good cropper and the blossom is perfect. Burt is a bisexual or perfect blossomed variety, producing a large crop of medium sized light scarlet berries, which stand long shipment very well. Buster is a pistillate or imperfect blossomed variety, producing large, medium firm, light scarlet berries, the foliage is strong and dark. Buster promises to be one of the useful kinds for a local market. Lovett is a medium sized, firm, crimson berry, which is worthy of being more extensively grown, as the quality is good and the vine fairly productive.

Warfield, that old standard variety with the dark crimson firm fruit, so much sought after by canners, did very well this year. Warfield is shallow rooted, and does best on a rather moist soil; it is a free runner and makes a very solid row; the blossom is pistillate. Williams, the berry which has been so generally cropped over Ontario, did not do so well as usual this year; nevertheless, it is too profitable a berry to be entirely discarded by the commercial grower. Clyde gave the usual heavy yield of soft to fairly firm fruit, a fine large berry, but a little too light in color to be called handsome. Where a good local trade can be supplied the Clyde gives excellent results, as it is a vigorous grower and heavy cropper. Haverland did well again this year, and the many excursionists who saw it remarked that its bright scarlet color and its good quality should make it a good canning berry. Its long flat shape is against it, but its good qualities to a great extent overcome this defect. Hero is a perfect flowered, vigorous growing kind, with fine, bright crimson berries of medium size. The seeds are bright yellow and varnished. Echo, another of the newer varieties, with perfect blossoms and good strong vines; it promises to be among the commercial varieties of the future. The fruit is of medium size, firm and scarlet, but owing to the dull color of the seeds it cannot be called handsome. Barton's Eclipse still remains among the varieties at the head of our list, its firm crimson, high flavored berries making it a favorite with those who supply a fancy trade.

Among the best late varieties are Parson's Beauty, Saunders and Irene. Parson's Beauty did not do so well as last year. The vine is very vigorous, the blossom perfect and the fruit a firm crimson berry, just

a little inclined to be seedy. It is a variety worthy of trial. Saunders is very much like Williams, but somewhat later, and holds its size better throughout the season. Irene is a late, strong growing pistillate variety, bearing large crops of medium

sized, firm, bright scarlet, sub-acid berries. Irene promises to be one of the best late berries, as it ripens after the glut of the market is over.

O. A. C.

H. S. PEART.

THE BEN DAVIS APPLE

ASK a man who is a commercial grower of apples, who grows and ships his own, and who has a good paying orchard, what variety has been the most profitable, and he will be almost sure to tell you the Ben Davis. Probably nineteen out of twenty growers will tell you the same thing. If this apple had the spicy flavor and quality of the Spy, it would be about as near the ideal apple as we could hope to attain. The good points about it are its early, regular and abundant bearing, and its good shipping and keeping qualities. Its greatest fault is its lack of quality, but it has some minor ones. Like all trees that bear early and heavily, it does not attain a large size, and in many localities is short-lived. It is subject to sun-scald and decay of the trunk. It cannot be classed as a strictly hardy tree; it may be classed as only half hardy in the northern sections. It has been planted more extensively during the last ten years than any other variety, and it is now a question whether it has not been overdone. No doubt the chief reason for its popularity in the past has been its splendid keeping and shipping qualities, making it most profitable for export to the British markets. It nearly always lands in good condition, and the buyer knows it will keep in good condition and will not spoil before sold. But with improved methods of handling and transport of our best quality of apples, so that they can be laid down in distant markets in perfect condition, the Ben Davis must inevitably be discounted on account of its lack of flavor and quality.

There is now another claimant for public favor, the Gano, closely akin to the Ben Davis, said to be a seedling of it. Being a comparatively new variety, it has not been extensively grown as yet. The tree closely resembles the Ben Davis in habit of growth and early bearing, but it is decidedly a better apple. It has also the keeping quality, in which it excels, and its qualities so far would indicate it as a safer one to plant than the Ben Davis. It would be well for intending planters to not plant heavily of the Ben Davis, or of apples of its class at present, but rather plant mostly some hardy sort for purposes of top grafting, and if after a few years it is found that the Ben Davis still retains its place as a paying commercial variety, it can be top-grafted on the hardy stock, and that is decidedly the best way of growing it. But it is not with apples of this class that our reputation as an apple-growing country is to be acquired and maintained. We must aim to produce something that has high quality to commend it, for it is quality that counts in all lines, and we have the soil and climatic conditions to do this, and we can do it; we can excel all other countries if we go about it in the right way. A reputation for high quality is, undoubtedly, the surest way to success, but whatever may be in the future of the industry, it cannot be denied that in the past the Ben Davis has been the most profitable commercial apple grown in this country.—*Farmers' Advocate.*

COVENT GARDEN MARKET

BY THE EDITOR.

TO the writer, a Canadian fruit grower, no place could exceed in interest Covent Garden Market. Here could be seen fruit and vegetables from all parts of the world, in all kinds of packages. There were strawberries from the south of France, in "boats," holding between two and three quarts, at \$1.00 each, two boats being tied together for shipment; tomatoes, probably greenhouse grown, about the size of our Snow apples, at from 8 to 20 cents a pound, put up in quarter sieves or round baskets, containing about a peck each; green gooseberries, in half sieves of about 18 quarts, at from \$1.75 to \$2; cherries, from the south of France, in little flat boxes, perhaps 10 x 8 x 2½ inches, in which the cherries were evenly laid against the top and showed up very prettily, at 50 cents a box, five boxes being tied together for shipment; asparagus, in "flats" or crates, holding eight "bundles," each bundle made up of six "hands," and each hand of twenty stalks, and selling at from 40 to 60 cents a bundle; peaches, no doubt greenhouse grown, packed in cotton batten, in boxes one layer deep at \$3.75 a dozen; green beans, from the south of France, at \$2.00 for a ten-pound basket; cantelopes, from Toulon, of course quite out of season in England on the 28th May, the date of our visit, at \$4.00 each; endive in crates; apricots packed in cotton batten, in shallow crates; lemons from Naples; apples from Tasmania, etc.

The packages used at Covent Garden interested me very much, especially because nearly all of them are returnable. The great heavy round osier willow basket, made in various sizes from quarter sieve (peck) to sieve and even larger, was the most common and looked as if it would stand use for ages. The buyer is charged

a shilling extra for the basket, which is allowed him back again if he returns it.

Surely in this the English fruit grower is wiser than we are, for he makes the buyer pay for the basket if he wants it; while in every case with us and our gift packages, we pay for the basket and give it to the buyer whether he has any use for it or not. Usually he only throws it away and counts it valueless. Here is a constant waste in our Canadian fruit industry, amounting in many cases to hundreds of dollars a year simply *thrown away* in fruit baskets. Is it any wonder that our fruit growers do not make much money when prices are low? Is it not time to call a halt and see if we cannot get an allowance for our packages, or else use returnable crates and baskets for all near markets!

"We would like to see your American gift packages in use here," said one of the Covent Garden salesmen, "it would save us a heap of trouble returning empties." No doubt our system facilitates trade, but it goes pretty tough with the grower, who pays rather dearly for the convenience.

On a second visit we entered the auction salesroom for foreign apples, to us a most interesting department of Covent Garden. All down each side were the elevated booths of the different houses whose names are familiar to us apple growers in Canada, as, for instance, "J. B. Thomas," "E. & O. Kelly," "Garcia, Jacobs & Co.," etc. Each booth had rising tiers of benches in front, for the convenience of buyers, and, below the auctioneer and in front of all the buyers, the porters kept bringing in samples of the various lots of fruit, opening them on a table in front of all, while the auctioneer knocked them down so rapidly that to us it seemed as if no chance for fair bidding was allowed.

On handing our card to Mr. Garcia, with whom we have many times had correspondence, he received us with the greatest courtesy, and gave us much attention and the fullest explanation, while the auctioneer, Mr. Simons, sold 1,500 boxes of Tasmania apples. The time occupied was little more than half an hour, and yet the prices were very satisfactory. Their boxes are not nearly as attractive as those our apple growers are using; they are smaller, too, and the fruit is not packed in them so neatly, although in most cases wrapped with a thin paper. The favorite variety from Tasmania seemed to be the Sturmer Pippin, which sold wholesale at from \$2.25 to \$2.50 a box. Mr. Garcia gave us a sample to eat, and certainly the flavor was good. In size it is about equal to the average Baldwin, but not so highly colored. In our opinion it cannot be compared to our Canadian Baldwin, and, if we could place them side by side with these Tasmanians, in equally perfect condition, we would not fear the result of the sale.

The highest prices for apples are realized

toward the end of May; the lowest average price being \$1.75 to \$2.50 per forty-pound box, because the American apples are over and Tasmanians have scarcely begun coming in. Speaking of the best time to get the highest price, one Covent Garden salesman said bluntly, "If you are going to spend your money in cold storage, you should sneak a week where you got it yourself," and no doubt he said a truth.

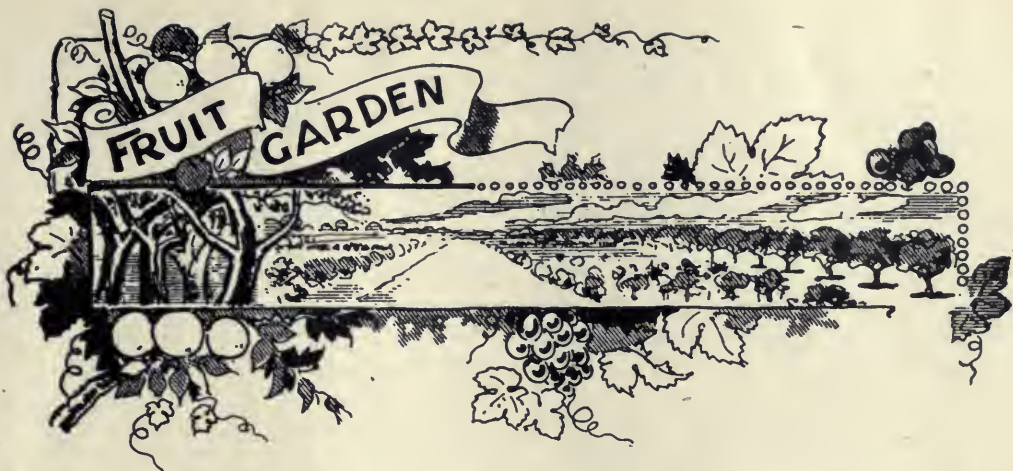
Messrs. Garcia, Jacobs & Co., have handled as many as 27,000 packages of fruit in one day, so it is evident they do a large trade, especially in apples and oranges. "We paid one firm in France," said Mr. Garcia, "£5,000 in one week for consignments of plums, which will give you some idea of our business."

Taking all things into consideration, we came away rather encouraged than otherwise, with the prospects before the Canadian fruit grower, and see no reason for discouragement, when we consider how favorably our fruit and our packages compare with those of the European countries.

COLD STORAGE IDEAS.

THE fruit season just closing has been remarkable in many ways, but in nothing more than in the sudden and enormous development of the cold storage business. Cold storage has been largely practiced hitherto, but never on the scale attempted this year. More important yet is the amount of really new knowledge which has come to light through careful observation, intelligent study and systematic experiment. It would not be far from the truth to say that the information developed during the current season is greater in ex-

tent and variety than all we knew about cold storage before. Possibly future experience will contradict some of the discoveries of 1902-3, but it will certainly confirm others. One discovery seems to be that low temperatures are best for nearly all fruits, including soft fruits like peaches. Further than that, fruits taken out of low temperatures seem to keep quite as well on the venders' stands as those taken out of higher temperatures. Wrapped fruit usually keeps better than unwrapped fruit and always ships better.—*Country Gentleman.*



THE FERTILIZATION OF APPLE BLOSSOMS.

BY

H. S. PEART, O. A. C., GUELPH.

THE cause of unfruitfulness in orchards and vineyards has always been the subject of much surmise, conjecture, and variation of opinion. Some authorities attribute it to lack of cultivation, others to lack of plant food, others to lack of pruning, and so on through a long list of causes. Few, however, have considered it in relation to the power of self-fertilization. For years, however, apple growers have followed the plan of growing a great number of varieties in order to make fertilization sure. This brings before us the question: Are some varieties sterile to their own pollen? Everyone will readily admit that where varieties are mixed in the plantation the chances for a perfect set of fruit are greater than where each variety stands isolated. How far this intermingling of varieties need be carried has not been definitely ascertained.

In the spring of 1892 M. B. Waite, of the U. S. Department of Vegetable Pathology, began a set of experiments to ascertain if pear blight was carried from infested to uninfested trees by insects which visited the blossoms. It was found that insects are

instrumental in assisting the spread of the disease. The question then arose: How can the insects be kept out? Experiments were tried by covering the blossoms and excluding the insects. Very startling indeed were the results. It was found that fully one-half of the so-called commercial varieties of pears are sterile to their own pollen.

The results of the experiments of Waite, together with inquiries from prominent horticulturists, as to the cause of unfruitfulness in orchards and vineyards caused others to follow up the work. Prof. S. A. Beach, of Geneva, began a study of the grape and published his report in the annual report of that station for 1892. Since that time he has continued this work, and quite recently has published a bulletin thereon. Prof. Goff of Wisconsin, and Prof. Waugh, of Vermont, have worked with plums. Prof. Craig did some work with apples while at Ottawa, but never published a complete report.

As the apple is now considered the main fruit product of Ontario we should know more of its power of self-fertilization. The

need for such knowledge prompted the writer to make a few simple experiments, which, at least in part, go to show that a few of our most common varieties may be grown alone and yet a perfect set of fruit secured. The observations made extend over but one year, and too much must not be inferred from them. In order to perfect a list of varieties which are self-fertile the work should be continued for at least five years, and be conducted on a somewhat more elaborate scale.

Sterility may be due to any one of several causes. Some of the more common of these are as follows: Defective pistils, insufficient pollen, difference in time of maturity between stigma and pollen, and impotency of pollen. Of these the last is perhaps the only one which can apply to any great extent to the apple blossom.

In order to ascertain whether or not a variety is self-fertile many different methods may be followed. The plan followed by the writer was very simple indeed. All the material required was a number of small paper bags large enough to cover the cluster of blossoms, some string, and some labels. One of these bags was placed over the bunch of blossoms just before they opened. The bag was securely tied about the mouth so that no insect could push its way in. Five or six such bags were placed on each variety tested to provide for accidental loss of one or more. Each bag was plainly labelled with the date on which it was placed on the tree, and with the number of blossoms in the cluster. The bags were allowed to remain on the trees until the fruit had set and all blossoms and many weak fruits had fallen.

On removing the bags on June 19th it was found that very few varieties had set fruit. It was, however, very encouraging to know that a few varieties were capable of setting fruit by their own pollen. It was found that out of twenty-nine varieties

tested only eight had set any fruit at all. Those which set fruit were: Alexander, Baldwin, Chenango, Early Harvest, Greening, Holland, Twenty Ounce and Ontario. The Baldwin had set two fruits, while the others had set but one fruit each. With the exception of the eight varieties mentioned, all the other varieties set no fruit whatever in the bags, while the balance of the tree, or trees, set full crops of fruit in every case. The non-setting of fruit in the bags may have been only chance, hence it would be quite unfair to say that these varieties are at all times self-sterile. What happened in 1902 might not occur again, and many of them might prove to be self-fertile if this work were continued for a number of years.

Omitting from the list those varieties which proved themselves to be capable of even a very limited self-fertilization, many of our best commercial varieties are left out. Blenheim, Ben Davis, Canada Red, King, Mann, Fameuse, Spy, Ribston, and many other more or less desirable varieties seem to be unable to set fruit unless fertilized with foreign pollen. We cannot afford to leave all of these varieties out of our commercial orchards simply because they do not set fruit when planted by themselves, for it is well known that in a mixed plantation they produce paying crops.

The question then arises: How are these desirable self-sterile varieties to be most profitably grown?

To answer the question we need to know more about the dates on which the different varieties bloom, because it is necessary to have the pistil of one variety ripe at the same time as the pollen of another, in order to have complete interpollination. It will be sufficient in most cases to determine the date of blooming, as the pistil and pollen of the apple are both ripe about the time the petals open, and are capable of remaining receptive for from one to five days. Taking the dates of blooming, as ascertained by

careful observation, we have certain data which enables us to know just what varieties to plant in order that the pollen from one may be ripe at the same time as the pistil of another. It also gives us an idea of the order in which to plant, so that the greatest amount of pollen may be transferred in the most simple manner, namely, by the wind. For instance, by consulting our record, we find that Spy, which by many is considered one of our best winter apples, is in full bloom at the same time as Ben Davis and Princess Louise, and but one day later than many other varieties. Now, if one desires to plant Spy he would in so far as the date of blooming is concerned, be safe in mixing with them a few Ben Davis or some variety blooming about the same time. Any number of desirable combinations may be worked out to suit each individual planter's conditions.

In regard to those varieties which have proven themselves to be self-fertile it would probably be safe to plant them singly. It is, however, seldom advisable to plant exclusively with one variety. Mixing of the varieties which we wish to grow will give us more certain results in every case, even

though some of them rank as self-fertile. The reason for the necessity for mixing self-fertile varieties is that a variety which proves to be self-fertile in one place may prove self-sterile in another, and under different management, as is the case with the Kieffer pear in many parts of the United States.

Growers are often prone to condemn a variety because it produces no fruit, even though the tree may blossom profusely. In such cases it would be well to ascertain whether this so-called sterility is due to defective pistils, lack of vigor, lack of pollen, self-sterility, or lack of mutual affinity between it and surrounding varieties, before condemning it as unprofitable. If the cause be defective pistils, which rarely happens, they may be right in condemning it. If lack of pollen, let them try mixing with a few trees of some variety which produces pollen freely. If self-sterile, the last-mentioned remedy may tend to fruitfulness if the mutual affinity be perfect.

To insure the greatest number of fertile blossoms in the orchard, it is just as necessary to have the varieties intelligently mixed as it is to prune, spray, or cultivate.

VINEGAR FROM WINDFALL APPLES.

THOSE windfall apples will make good vinegar if gathered up and run through a cider mill and then the juice thus obtained allowed to ferment. The riper the apples the stronger the vinegar they will make. If the apples are very green a little sugar added to the cider before fermentation sets in will improve the quality of the vinegar very much. The cider should be placed in wooden or earthen vessels and set in the sun until fermentation has run its course. It then can be stored in the cellar or other convenient place for use.

Windfall apples in the Experiment Station orchard at Stillwater, Okla., were gathered July 31 and made into cider. These apples made an average of $2\frac{1}{2}$ gallons of cider to the bushel. In thirty days the cider had finished fermentation and was a vinegar of fair quality. Pipe peaches were gathered on the same date and the juice pressed from them and placed in jars for fermenting. In thirty days this was a vinegar of a better quality than could be found on the local market.—*American Gardening*.

THE GRADING AND PACKING OF APPLES

AN ADDRESS BY M. ALEXANDER MCNEILL BEFORE THE WESTERN NEW YORK FRUIT GROWERS' AT ROCHESTER, JANUARY 28TH, 1903.

IT needs no argument to show that systematic grading enhances the value of fruit, not only from an aesthetic point of view, but even for economic purposes. A package containing only fruit of the same kind appeals first to the eye, but what is more important, it appeals also to the good judgment of the thrifty customer. A man who wants to buy large, highly colored apples has little use for those that are "off" color and somewhat deformed. On the other hand, there is a class of customers, especially in the English markets, who prefer the smaller apples, and will even pay a higher price for them, and such find the larger apples a distinct loss. Another class of customers, using fruit solely for culinary purposes, are not particular as to color, and do not object particularly to a few defects so long as they do not cause undue waste.

Making a comparison between the growers of the eastern and western sides of the American continent, noting the difference in the mode of conducting the fruit business, it is apparent that the fruit growers of California, Oregon and British Columbia excel in the grading and packing of their fruit, the fruit growers of the east having the advantage in point of flavor. In fact, the reputation of California fruit and the high prices which are obtained for it are largely a matter of grading and packages. I am not particularly hopeful that there will be a revolution soon among the fruit growers of the east in this particular. The habit of tumbling fruit into baskets and barrels indiscriminately has been too firmly ingrained into our natures, and until a new generation of better trained fruit growers

takes control of affairs, I do not see that we can hope for much change. The younger generation will either have to improve upon their predecessors in this matter of grading and packing, or they will have to abandon the fruit business. No change in varieties, not even a change in modes of culture, will enable them to hold with any degree of profit against the better methods of packing and grading of the progressive energetic western grower.

The grading of apples is simply a matter of arranging them in classes according to their qualities, and in assigning an apple to any particular grade we take into consideration the following: Size, color, form, flavor, keeping qualities and material defects, such as worm holes, bruises and scab. Of these, flavor and keeping qualities are included in the name of variety. When we speak of a Duchess apple we associate with it a certain degree of flavor and short keeping qualities. When we speak of the Ben Davis we associate with it long keeping qualities, though some would deny that any flavor is implied in the name. The other four qualities determine the grade names which we shall adopt for the different brands of apples.

The Parliament of the Dominion of Canada has passed what is known as the "Fruit Marks Act, 1901." This act designates the marks that must be used throughout the Dominion of Canada for the grade of apples. Apples of the best quality are marked "No. 1" or "XXX," second quality "No. 2" or "XX," third quality "No. 3" or "X," and one or other of these six marks must appear upon every closed pack-

age of apples. The same act defines No. 1 apples, but it does not define any other grade. This definition reads as follows: Packages marked No. 1 or XXX shall contain well grown specimens of one variety, sound, of nearly uniform size, of good color for the variety, of normal shape, and not less than 90 per cent free from scab, worm holes, bruises and other defects, and properly packed.

No definition, however, is given of a No. 2 apple or of a No. 3. This is not an ideal system of grading, but it meets with the needs of the apple business as it is conducted at the present time, and as it is likely to be conducted in the Eastern States and Canada for many years to come. In an ideal system of grading nicer distinctions of form, color and size would be noticed, and a due allowance would be made for such physical defects as scab, worm holes and bruises, but in the actual practice of the orchard this is impracticable. It is probable that 75 per cent of all the apples in the eastern part of the continent are sold to dealers who go through the country and buy by the barrel, or for a lump sum all the fruit in the orchard. In either case the buyer puts in his own gang of packers, and the apples are graded under the supervision, or supposed supervision, of the boss packer. These men are employed but a few weeks in the year, and of necessity are not skilled laborers. Any effective legislation must recognize this, and will not, therefore, insist upon a system of grading that demands great skill. A No. 1 apple is simply a fairly well colored apple of any size, not small for the variety, and practically free from worm holes, bruises and scab. No attempt has been made by the government to define a No. 2 or No. 3 apple. This is left to private agreement, or fruit so marked is sold by sample. I might add in parenthesis that all fruit must be packed so that the face or shown surface gives a fair representation

of the whole package, which must also bear the name and address of the packer. As a consequence, when a barrel of Canadian No. 1, or XXX apples is exposed for sale the buyer is reasonably sure of getting sound apples, of fairly good color and size. If marked No. 2 or 3, or XX or X, the face will show the quality of the fruit. It has been suggested that in a No. 2 grade apples be admitted having worm holes in the blow end or a slight amount of scab or dry bruises or other defects, that do not cause serious waste or detract much from the general appearance of the apple, but it is to be feared that if this were embodied in the act of parliament the definition could not be given with the definiteness always desirable in legal documents. Such a definition would be a workable one between two parties who had thoroughly agreed upon the amount of the defects to be permitted, but I am inclined to think that even a most carefully worded definition admitting defects would be apt to give rise to many misunderstandings. Yet such fruit has a distinct value, and undoubtedly will be shipped for many years to come. It is much easier for the intelligent and progressive fruit grower to grow an apple of good size and color, free from worm holes, bruises, and scabs, than it is to give a definition for a No. 2 apple, permitting defects, that lawyers would not readily tear to pieces the first time a case were tested in the courts. My advice, therefore, is to improve our methods, legislate for a perfect apple, having only such defects as can fairly be said not to cause appreciable waste, and in this way not show too much leniency towards the growers and the packer, who wishes to deal with No. 2 fruit.

But the progressive fruit grower will not be contented with merely meeting the comparatively low requirements of any workable legislation. At least three grades may be made in the Canadian No. 1 class. One

grade would contain the largest apples (the sizes varying with the variety), all evenly colored and perfect in form and free from defects. Another class may be made, with the same requirements, except that medium sized apples would be used. A third grade would contain good sized, sound apples, not uniform in color or size, and having possibly some defect that does not cause appreciable waste nor seriously mar the looks.

All these grades would be No. 1 Canadian standard. Canadian shippers add description names to the grade names, thus, for best grade, some use "select" or "choice" No. 1. For the next grade "medium" or "prime" No. 1, and for the third simply No. 1.

The following grade marks have been suggested and used by Mr. L. Woolverton, editor of the Canadian Horticulturist:

For apples—

2¼ inch XXX	or small or dessert.
2½ inch XXX	or No. 1.
2¾ inch XXX X	or A No. 1.

3 inch XXX XX or Extra No. 1.

3¼ inch XXX XXX or Ex. large No. 1.

Others use purely arbitrary names such as "Imperial." All these names have something to recommend them—none received universal approbation. In a general way I would suggest that the names adopted be as simple as possible, or such as are well known. Instead of getting something that only the initiated could understand, choose such names as will make it perfectly clear to the consumer which brand indicates the best, the second best, and the lowest grade of fruit. Any mystification in this matter will not work to the benefit of the producer or consumer, but to the benefit of the middleman if to anyone. Uniformity in grading, packing and marking is very desirable for each particular State, but it is much more desirable to have a uniform system for all the States, and there seems to be no good reason why a uniform system should not include the whole North American continent.

FRUIT WELL SERVED.

FRUIT is many times more palatable at the table when daintily served. Those country housewives who have tried to introduce it at the family breakfast table without success should try what daintiness will do. The eye once tempted, the battle is won. Fruit is extremely healthful for the morning meal, much more so than its bulk in solid food which would probably take its place if fruit were not temptingly served.

It is important that fruit be very cold when it comes to the table. Oranges and bananas should be set on ice over night and should be served in the prettiest china or silver that the house affords. Strawberries when large are best served whole with their

stems intact, so they may be dipped in powdered sugar and eaten from the fingers one by one. Cherries and currants with their stems on may be moistened in a little white of egg and dipped in granulated sugar, then piled high on the plates. Apples should, of course, be wiped dry and then polished until they shine. Pears and grapes in their season are fine breakfast fruit and look well in a center-piece, the pears half covered with the stems of purple grapes. Peaches and grapes are also a pleasing combination. A musk or watermelon cut apart in the shape of a flower is extremely pleasing as a center-piece. Either should be well chilled before serving.

MONEY IN TREES

FRENCH FARMERS WHO GROW CROPS OF CHESTNUTS FOR MARKET.

THE French understand how to make money out of trees. They appreciate the value of the forests, and have some of the largest and best in the world. There are vast woodlands belonging to the government and private holdings in which the trees are as well cared for as in our city parks. Only the ripe trees are cut, and every piece of fallen wood is saved.

The roads and streams and little canals of France are lined with poplars. Some of the trees are a hundred feet high. They are bare of branches, with only a tassel left on the top. Others are full limbed, and others are just sprouting new growth on all sides. These poplars are grown for their branches, and are finally cut down for wood or for furniture. The branches grow rapidly. They are cut off year after year, put up in bundles and sold to the bakers to make the hot fires necessary for the crisp crust on the French bread. There is such a demand for them that raising them is one of the chief industries of France. The poplars are planted in places which are good for nothing else, and after five years each will annually produce at least twenty cents. Later on the trees are cut down and sold. Willows are grown in the same way, their sprouts being used for baskets.

The French make money out of chestnuts. They grow varieties which are from two to three times as large as the American chestnut, and sell them to the fruit stands and the groceries. The chestnuts are used to dress turkeys, geese, chickens and game, and they are also used for dessert. The confectioners make candy of them, and the best candied chestnuts being forty-five cents per pound, or, if coated with chocolate, fifty-two cents a pound. There are large

establishments in France which do nothing else, one at Lyons, handling 25,000,000 pounds of chestnuts a year.

The French chestnut trees are not cultivated. They are usually planted on poor earth and in time are cut for their wood. Some chestnuts are grafted, and there is no doubt but that the French and Spanish chestnut can be grafted on our native American sprouts. There are men in Pennsylvania and New Jersey who are making chestnut grafting commercially profitable, and the same might be done in other parts of the United States.

In South France, Spain and Italy chestnuts are ground into a meal and used for bread, and they command good prices in such localities. In the United States they are chiefly sold by fruit venders and by the confectioners and bring \$7 or \$8 per bushel. In France they sell by the kilogram for 2 or 3 cents a pound.

The French have 1,000,000 acres devoted to gardens and fruits, and in riding over the country you pass fields of hotbeds and see glass frames propped over plants outside the beds. In many places glass bells are used to cover the individual plants, and there are some sections which raise potatoes under glass for export to London.

The French have studied the soil, and the sun, and they coax both to work. They feed the crops rather than the land, and in places get three crops a year, through intensive cultivation. Near Cherbourg cabbage is raised early in February. After it is taken off a crop of potatoes is planted, and a third crop comes on in the autumn. This is on land that has been used for generations.

And still Americans talk of old Mother

Earth being worn out. The old lady has all the possibilities of perpetual youth, but coquette that she is, she must be fed with the dainties she loves and petted to make her yield her best crops. This is especially

so as to the vineyards, which have been used for generations. The French vines are cut down every year, and every vine has its individual stake, and one might say its individual treatment.—*Mail-Empire*.

PROTECTION FOR CHERRIES IN THE COLDER DISTRICTS

BY PROF. W. T. MACOUN, C. E. F., OTTAWA.

HERE has not been a full crop of cherries in the Ottawa district and at the Experimental Farm since 1898, owing to the flower buds being killed by frost either in winter or spring. Sometimes the flowers never open, and again when they do open, the pistil is found blackened and the flowers rendered unfertile. In 1902 there was a light crop of fruit, and in some trees a medium crop, and on one tree a heavy crop, the variety being one of the seedling dwarf Koslov Morellos, mention of which has been made in the

Canadian Horticulturist before. This tree was very low growing and partially protected by snow in winter. This year the crop is a failure, there being only a few fruits on trees of the hardiest varieties. The Koslov Morello, which fruited so heavily last year, was winter killed. Fortunately this tree had been previously propagated.

The hardiest cherries tested at the Central Experimental Farm are among the Russian varieties, the Vladimir and Orel 25 being the hardiest in the flower bud.

This note was written principally to call attention to the value of protection for the cherry. The accompanying photo, taken by Mr. F. T. Shutt when the cherry tree should have been full of bloom, shows that it was only near the ground where the flower buds were protected by snow that they developed.

In the Ottawa district, and in districts where the climate is similar, unless we get hardier varieties, we shall have to change our methods of growing cherries and have dwarf trees or train the trees in such a way that they can be protected. The latter method is not likely to be adopted, but if dwarf trees could be obtained of the hardiest varieties there would be the double advantage of having trees which could be protected readily from birds, as at present when there is a crop of fruit the birds get a large share of it, especially when there are only a few trees. At the Central Experimental Farm we are working to obtain a dwarf cherry which will be equal in quality to any of the tall growing Morellos.



FIG. 2645.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

CIVIC IMPROVEMENT

WORK FOR LEAGUES—SUGGESTIONS TO HORTICULTURAL SOCIETIES, SCHOOL BOARDS, FAIR BOARDS AND CLUBS—DANGERS OF DIRT.

ANOTHER good work for leagues to undertake is to arouse the interest of the school children in botany and a general love of flowers by inducing state and county fair boards to offer premiums for the best display of potted plants and cut flowers grown by pupils of the public schools. The prize should go to the school and the moneys should be spent for something all the pupils may enjoy. A premium for the best botanical display and the most comprehensive collection of grasses native to the state or county might be given to the individual pupil.

One association exhibited at its county fair a miniature cottage with vine-clad porch and pretty window boxes, the tiny lawn and flower beds were as neat as hands could make them, and all the necessary out-buildings were designed with an eye to adornment. When what the ladies intended to do became known offers of assistance came from every direction. The carpenters, painters and other workmen had a good time over the work.

By the side of this was built another miniature house, without adornment. A weedy yard, no vines, no flowers, old unpainted buildings, untidy fence, and old

board walks made a lesson all could read.

These tiny cottages were the great attraction of the fair. It was difficult to get near them, and finally a wire had to be stretched around them to prevent their ut-



"Home."



"Lodgings."

FIG. 2646

ter destruction. Not a person who saw them but carried the lesson home and viewed his own premises with critical eyes.

* * * * *

Two teachers in the manual training school of Toledo, Ohio, while on the way to school were discussing the dangers of dirt. They found a chip of wood, and stooping down scooped up less than a teaspoonful of dirt from the street, carried it to the laboratory, put it in a culture tube, and when a week or two later a professor from Johns Hopkins University happened along this tube was shown to him. Among many other germs the tube contained the well developed bacilli of typhoid, of scarlet fever, of diphtheria, of tuberculosis, and two other bacilli so rare that permission was asked to take the tube back to the university in order to see if they could be classified. Toledo's dirt is duplicated in every city in the world, and it is not agreeable to think of carrying such matter into the house, where, swept up in dust it fills our lungs with deadly germs.

The only comfort science gives us is that, following a law of nature, the big bacilli are forever destroying the little bacilli, so that while we are constantly breathing these deadly germs into our systems, yet it is only when conditions are favorable that disease develops. Let each city, town and village build to the god Uncleanliness altars called crematories and sacrifice to him therein all that are his. Let the fire burn perpetually, so that his servant Disease, finding no more work to do, will lay himself on the altar as a final sacrifice; and in the places made vacant by Uncleanliness and Disease let flowers bloom that their fragrance may ascend as a sweet incense to the god of Health, and as an acknowledgement that his servant Cleanliness has followed the command to let in a little sunshine.

Science, the other name for common sense, concedes that cremation is the only way in which garbage, offal and waste of

all sorts may safely be disposed. The pollution of our streams and rivers by city sewage should be made a criminal act. Mr. Kipling says the soil of India is so impregnated with the filth of ages that a fall which grazed the skin has been known to cause lockjaw within a few days. Let us keep America wholesome. Jacksonville is one of the thirty-three cities using a typical crematory. It is a combination of three furnaces of fire brick; one to burn the solids, one for evaporating and burning the liquids, and a "combination chamber" in the stack to completely decompose and burn the vapors. Garbage, "combustible waste," night soil and dead animals are dumped into the furnaces through circular openings

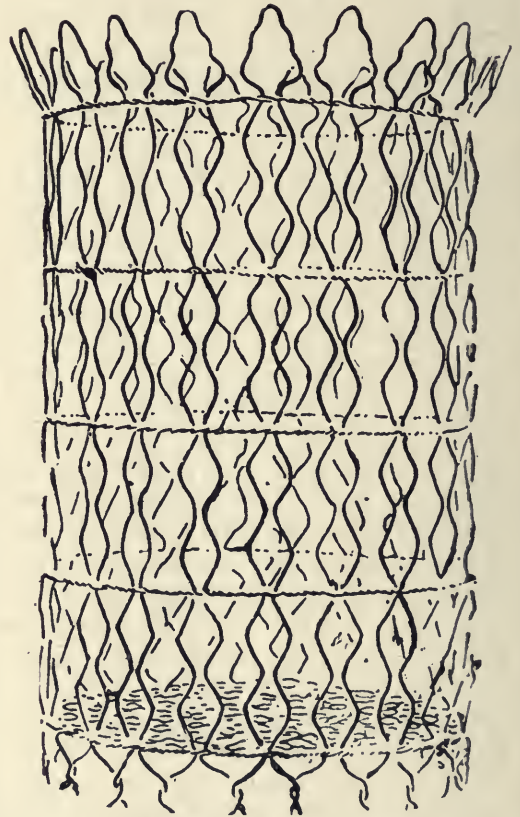


FIG. 2647. GALVANIZED WIRE RUBBISH BASKET FOR STREET USE.

This basket is strongly recommended by the Thomasville, Ga., Association, because the contents may be burned in the basket. It is a good idea for an association in small towns, where there is no municipal collection of waste.

in the top and no handling or sorting of filth is required. The floor of the crematory is on a level with the top of the furnaces, thus making the dumping of carts and wagons quick and easy.

There is absolutely no excuse for hauling ashes, garbage, swill, etc., through a city in open wagons. The illustration below shows a water-tight, steel wagon that is easily cleaned and disinfected, making it as nearly odorless as possible. It has also the merit of looking well in service.



FIG. 2648. STEEL SANITARY CART.

This cart is water tight, almost air tight, and can be turned bottom side up if necessary for a thorough emptying or cleansing. It has two lids for easy loading, weighs 1,300 pounds, and carries 37 cubic feet.

The women of Bethany, Missouri, called a meeting at the court house and organized a society which was called the Woman's Improvement Association. In four months the streets had been cleaned, the city council requested to enforce with greater rigor the various sanitary ordinances, and the court house square has been made more attractive by vases of growing plants. The ladies solicited the necessary funds, and in conjunction with the fraternity owning the cemetery secured the services of a permanent sexton. In addition to this flower beds have been made in the cemetery and the churchyards. This association also opened a public waiting room, which is one of the largest and finest rooms in the city. It is light and airy, well furnished and provided with all the necessary toilet conveniences. The tables contain plenty of good

reading matter, which, with the beautiful plants and pictures, makes the place seem quite home-like. The women of this club have employed a matron, whose duties are the general oversight of the room, and to make comfortable all the guests. Bethany has a population of less than three thousand.

* * * * *

The improvement league of which I am a member has, through the generosity of one of its members, distributed to the school children of the city twenty-five thousand packets of flower seeds. Another member has offered \$50 in prizes to boys and girls of fifteen years of age for the best kept lawn and premises, and for the prettiest flower beds. These flower seeds and prizes have aroused a lively interest among the school children, and cannot fail to help the appearance of the town to a marked degree. We have also induced the county fair commissioners to offer prizes for the best cut flowers grown by children. We are trying to induce the city school board to make an exhibition of the drawings and water colors of the school children at the county fair. It is only a very few years until the question of the centralization of the country schools will be up before the people, and an exhibition of some of their work will give the country people an idea of the advantages of the graded schools. These are a few of the things we are doing, and we yet hope to have a botanical school garden started near the city.

The Fairhaven Improvement Association, Fairhaven, Massachusetts, is eighteen years of age, and has done a great deal in the way of setting out trees (over two thousand), establishing bath houses (over one hundred), converting an old cemetery into a park, instituting work toward another park, reclaiming another old graveyard and making it sightly. The association is now projecting the erection of a fine drinking fountain at the entrance of a new and beautiful bridge.



FIG. 2649. SEWAGE DISPOSAL WORKS AT HAMILTON, ONT.

AN IMPORTANT PHASE OF CIVIC IMPROVEMENT.

ABOUT eight years ago Hamilton undertook to solve the sewage disposal problem by building an elaborate system of interception works to prevent the pollution of the waters of Hamilton Bay.

The sewerage system of the city is one of the most complete to be found anywhere. There are about $3\frac{1}{2}$ miles of main trunk sewers and 49 miles of laterals or small service sewers. By means of the trunk sewers the city is divided into three districts for sewer purposes. The sewage from the easterly district flows to the Wentworth street disposal works, that from the center to the Ferguson avenue works, and that from the westerly district into the marsh land lying between the city limits and Dundas. Already provision has been made for

a third disposal works in the westerly district, and when these are in operation there will be nothing but a clear water flow into Hamilton Bay.

The disposal works now in operation, which handle the great bulk of the city's sewage, are the first to be erected in Canada. They were built in 1896, and are of the well known chemical precipitation sort. The effluent or clear water flow from these works, after the solids from the sewage have been extracted, flows into the bay. The solids are pressed into a stiff, clay-like sludge, which is used by farmers for fertilising purposes. The cost of operating the two works now in operation is about \$13,000 a year.



FIG. 2650.

THE BILLBOARD NUISANCE

THE billboard nuisance is one that should be taken in hand by our horticultural societies, and all clubs having in view civic improvement work. It is a shame the way in which some of the most beautiful parts of town and country scenery are disfigured by ugly billboards advertising various soaps, tobaccos or oils. and there is no limit to the abuse, except possibility, for, if they could, these money grabbers would paint their waves upon the very clouds of heaven.

In some of the States laws have been prepared to prevent this abuse, and the following is a copy of an Act to be introduced in the Pennsylvania Legislature:

AN ACT

To prevent the pasting, painting, branding, stamping of advertisements, notices, signs, cards or posters in certain places, and providing penalties for the violation thereof.

Be it enacted, etc.

Section 1.—That no person shall paste, paint, brand or stamp, or in any way whatsoever place upon or attach to any building, fence, bridge, gate, outbuilding or other object upon the grounds of any charitable, educational or penal institution of the State of Pennsylvania, or upon any property be-

longing to the State of Pennsylvania, or to any county, township, borough or city therein, any written, printed, painted, or other advertisement, bill, notice, sign, card or poster; provided, that nothing herein shall be so construed as to prevent the posting of any notice required by law or order of court to be posted, nor to prevent the posting or placing of any notice particularly concerning or pertaining to the grounds or premises upon which the same is so posted or placed.

Section 2.—That no person shall paste, paint, brand, stamp, or in any manner whatsoever place upon or attach to any building, fence, bridge, gate, outbuilding or property of another whether within or without the limits of a highway, any written, printed, painted, or other advertisement, bill, notice, sign, card or poster, without first having obtained the written consent of the owner or tenant lawfully in possession of occupancy thereof.

Section 3.—Any person convicted of violation of the provisions of this Act shall be deemed guilty of a misdemeanor and shall, upon conviction, be fined in a sum not less than five nor more than twenty dollars; and such written, printed, painted or other advertisement, bill, notice, sign, card or poster is hereby declared to be a public nuisance, and may be removed and abated as such.



FLORAL NOTES FOR SEPTEMBER

BY

WM. HUNT,

O. A. C., GUELPH.

PLANT PROTECTION. The temporary protection of the more tender varieties of both pot and border plants from early frosts is a matter that will demand watchful attention on the part of plant lovers during September. By the exercise of a little watchfulness and care at this season the beauty of many a fine specimen plant—or perchance of a bed or border of plants—may be prolonged well on until late autumn if a slight covering or protection of some kind be given them at night during the prevalence of the slight frosts of early autumn, that often precede perhaps a month of beautiful summer weather experienced later on. By keeping even a light cotton or perhaps a woollen covering near at hand to cover the plants with, or by lifting the plants in pots for a night or two underneath the shelter of a veranda, tree, or fence, their beauty and safety may be insured against these slight frosts that will at least mar their beautiful summer tints, if it does not, as is oftentimes

the case, blacken and destroy their beauty entirely. Watch the thermometer closely, and remember that 40 degrees at sundown certainly means a decidedly chilly, if not a frosty night. Cover up the plants even if doubtful; it is far better to be sure than sorry, especially when it is only a question of a little pleasing exercise to ensure safety.

THE HARDY BORDER. This is a good time to transplant—and divide if necessary a few of the hardy border plants. Herbaceous *Pæonies*, German *Iris*, *Dicentras* (*Dielytra*), and any of the early flowering garden lilies and *Lily of the Valley*. If the clumps of *Iris*, *Pæonies* or *Dicentra* are very large, they should be divided into clumps having from three to five crowns. These will make fine strong clumps, and give good flowering results the first season if properly planted. In planting *Iris*, the mistake of planting too deeply is often made. The large fleshy rhizomes of these plants should be only barely covered with soil when planting them, burying them en-

tirely underneath the soil is unnatural and invites rot and disease to the plant. The German Iris will succeed in almost any kind of soil, or in any part of the garden, but a rich, loamy, well drained soil, and a position shaded from the sun for a few hours at noonday gives the best flowering results and prolongs the flowering period of the plants.

The several varieties of *Hemerocallis* or Lemon Lily can also be transplanted successfully at this season.

I have also had good success in transplanting many other hardy border plants in early autumn. Amongst others may be mentioned the Japanese *Spireas*, as well as the hardier double and single varieties of *Spirea filipendula*, both of which are pretty and useful border plants.

Pack the soil firmly around the roots when planting, and water the plants well once if the weather is very dry. Packing the soil firmly will help to prevent the plants lifting, from the action of severe frosts. Another point to be considered in transplanting these, or indeed, any hardy perennial plants, is to carefully pick out from the clumps every vestige of any perennial weeds, such as twitch grass, yarrow, dandelions, etc., as the bane of all perennial borders and border plants are perennial weeds, and there is no better time for eradicating these than at the time of transplanting.

SEED SAVING. Many varieties of plants, both of annuals, biennials and perennials, will now be producing seed that might be of service at least in supplementing the supply usually purchased. The saving and drying

of seeds, so as to have them of the best quality possible, requires watchfulness and care. Many varieties, such as balsams, portulacca, aquilegia (columbine) and others require to be picked early in the pod, as if the pods are allowed to stay on the plant until the seed is ripe much of it is lost. In drying seeds never tie them up in close airtight bags when first picked, as this plan induces mildew and possibly rot. Either spread the seeds or pods out on a tray or fine sieve and place them in a cool, dry, airy place until they are quite dry, or tie them up loosely in coarse muslin or cheesecloth bags and hang them up in a dry, airy place under cover from rain or heavy dews. Placing the seeds outside in the sun in the day time and removing them under cover at night will hasten the curing and drying of seeds without injuring the germinating property of the seed. Avoid drying seed too near a hot stove, as they are often spoiled in this way. Large seed growing establishments usually have kilns built expressly for drying seed. Even these, built as they are on scientific and practical principles, are oftentimes responsible for the immature and weak germinating power of many seeds that would have been of much better quality if ripened off and dried more gradually.

Seed should always be saved from what have been the best specimen flowers, so as to secure as good a type of flower as the original, if possible. By careful selection of the best typical blossoms of each variety, much can be done toward the improvement of strains and varieties of plants, more especially annuals.



FIG. 2651.

COUNTRY EFFECTS IN TOWN.

THE accompanying illustration gives but a glimpse inside the grounds about a city home, larger than an ordinary city lot, of course, but not so large as hundreds of our modern city residences where the inhabitants have none of nature's beauty. Very few people understand how simple a task it is to build up country life about them. The high board fence covered with ampelopsis looks like a covered building; it screens a vegetable garden. From the drive to the barn is partitioned by

a fence of birchbark logs. The drive having a bend, trees and shrubbery to the right cover closely. Under the tree is a footpath with perennials on either side, perfectly wild. To the left, in front of the residence, is the open lawn. This sort of condition is easily brought about on a place 150 x 150 feet. The material used is nothing more than can be selected from any up-to-date nurseryman's catalogue of trees, shrubbery and perennials.—*American Florist*.

SOME FLOWER LEGENDS*

BY

EDWARD TYRRELL, TORONTO.

THIS is the time for holidays, when many of your readers will have the opportunity of taking a month or two months' rest and recreation. There is pleasure in the anticipation of a good holiday. I remember as if it were yesterday when I was an apprentice in London, the proprietor of the house I was in made it a rule that every one of his employes (and there were about one hundred and sixty of us) before going on their holidays should go into his office and see him before leaving. His kind remarks as to our work, and the desire to be remembered to our parents or relatives, and the hope that we would spend a pleasant outing and return refreshed and strengthened was very encouraging. To many he would say, "Where are you going for a holiday and a rest from business? The mind is often better rested by reading, allow me to give you this book," and he would select one from a large supply he always kept in his room, and it would be a good one, not a goody goody tract, but by a standard author. Those of us who have one or more of these books, money cannot buy them. I echo his words to those taking their holidays, "take a number of books with you." What friends you can have, how much information they will give! If you are ignorant they will not laugh at you, if you mistake them they do not get offended. A favorite writer says: "I have friends whose society is extremely agreeable to me, they are of all ages and of every country, they have distinguished themselves both in the cabinet and in the field, they relate to me the events of past ages, and reveal to me the secrets of nature. Some, by their variety, drive away my cares

and exhilarate my spirits, and others teach me how to live, and how to die. In return for all their services they only ask me to accommodate them in some corner of my humble habitation." It is good advice, try it, you will be helped as I have been.

My notes this month are on the House Leek (*Sempervivum*), common in Europe, called Fous or Fousts in Scotland; Poor Leaf and Hen and Chickens in Devonshire; in other places House Leek and Jupiter's Beard. The leaves, cut or bruised, and applied to burns or stings of bees or wasps afford immediate relief. They are a beneficial application to ulcers and sores, and are esteemed for fevers. In early times, so it is recorded, by growing them on the roofs of houses they would keep the lightning off, and in confirmation of this belief Charlemagne issued an edict for their general culture in these words: "Let everyone have the Jupiter's beard on his house to keep off the lightning."

Lilium candidum (white lily). The common white lily is one of the oldest and noblest as well as commonest flowers of the garden, more especially in England. It belongs to a family of plants that has no poor relations. Poets from Homer down have sung its praises side by side with the rose and violet, for its beauty and stateliness, the snowy whiteness of its flowers and its fragrance as to be quite without a rival. It has been claimed as an emblem by nearly a hundred saints. It is a native of the country called the Levant, and as the Levant includes Palestine, it is by no means proper to consider this as the "Lily of the Field" referred to by our Lord in his sermon on the

*This article was written for our August Number.—EDITOR.

Mount (although other flowers were very plentiful, such as Scarlet Martagon or the Lily of Byzantium, white Cyclamens and scarlet Anemones). It is dedicated by the church of Rome to Mary, the mother of Jesus, and it is known as the Madonna lily. In Ireland it is said that travelers can distinguish the houses of Protestants and Catholics when lilies are in bloom by the orange and white lilies. The Romans call it Juno's rose. It seems to have a special charm of its own, so chaste it is, so inviolable in its purity, and on this account we cannot behold the lily without feeling a kind of reverence for the flower mixed with our admiration for its elegance of form and purity of color. To me a garden does not seem complete without this flower, it is all that can be imagined, desirable and perfect in floral form. A great inducement to the cultivation of this species is their ease of culture and their almost perfect hardiness,

thriving vigorously in the garden border, where they can remain for years undisturbed.

" Within the garden's peaceful scene
Appear'd two lovely foes,
Aspiring to the rank of queen,
The lily and the rose.

The rose soon reddened into rage,
And swelling with disdain,
Appealed to many a poet's page
To prove her right to reign.

The lily's height bespoke command,
A fair imperial flower;
She seemed designed for Flora's hand,
The sceptre of her power.

This civil bickering and debate,
The goddess chanced to hear,
And flew to save, ere yet too late,
The pride of the parterre.

'Yours is,' she said, 'the nobler hue
And yours the statlier mien,
And, till a third surpasses you,
Let each be deemed a queen.' "

THE GORGEOUS PEONIES.

I WISH to add my mite of praise to what others have recently said in commendation of these majestic flowering plants. I think of all the blooming plants of our gardens these produce the largest, most attractive, most gorgeous blooms and most varied in pleasing colors, and easily rank, when in bloom, as the queen of showy flowers. The herbaceous peonies are perfectly hardy and will endure many degrees below zero when properly planted. They are strong growers, requiring a strong, rich soil, and are succeeding to perfection all over the country, especially in the west.

The plant is a gross feeder and when transplanted should have a liberal allowance of strong rotten manure worked into the soil, planting four inches deep, which will settle to three inches. They should be mulched with manure after planting. The

peony will remove at any time, even in full growth, which is, however, not to be encouraged. Some of our customers beg to get plants even when in bud, which we never agree to.

The best time to plant peonies is in early fall. Then they are more dormant than at any other time of year. The old stems should be cut off close to the roots, for when left on they have a tendency to heave out of the ground by action of frost. Be sure and mulch them after planting. When planted in fall they do much better the next season than if transplanted in the spring of the year. Peonies do not need frequent removal, but will succeed in the same spot for many years after being planted, and if once in several years they are well fertilized they will last one's lifetime.—*American Florist.*

FLOWER AND PLANT LORE

BY

EDWARD TYRRELL, TORONTO.

THE present month brings with it unspeakable signs of autumn, one of its chief beauties consisting in the change which takes place in the tints of the foliage of trees and plants. The garden begins to assume a somewhat ragged appearance, many of our summer flowers are beginning to lose their beauty, but the flora of this month, though not so extensive, is not without interest. One attractive species is the

PHLOX (from Phlox a flame). This plant is a native of the northern part of this continent, and is one of the many perennials that deserve our admiration. There are few flowers amongst the large variety which have been brought by collectors from distant regions and naturalized in our gardens more deserving of attention than this pretty native. Nearly every species of this somewhat extensive genus is perfectly hardy; it is well suited for various purposes in the tasty arrangement of a flower garden, the height to which they grow, the colors of their blossoms, for we find them in nearly shade of color, and the flowers growing in terminal spikes and prominent colors, make them a desirable contrast to the almost universal similarity of autumnal flowers, both as to form and color. They can be increased with a certainty of preserving

the distinctive characteristics of the plant by the divisions of the roots.

DRUMMONDI is an annual variety of the Phlox, and esteemed one of our most useful annuals; it was found in Texas in 1835 by Mr. Drummond, a gentleman engaged in collecting new plants for the Glasgow Botanical Society. He died with fever in Cuba in the prime of his life and Sir W. J. Hooker, to preserve the memory of this gentleman's labors, named it Phlox Drummondii.

ACONITUM NAPELLUS (Monkshood, a native of Northern Europe). In Monastic herbaries it was known as Odin's hood. Thor's hat, Friar's cap, and Helmet flower. Afterwards it became known as Monk's hood. It has another name, Wolf's bane, or Wolf's poison, which originated, as Gerard says, from the fact that hunters which seek after wolves put the juice thereof into raw flesh which the wolves devour. are killed. Every part of this plant, from pollen to root, is poisonous. Its handsome leaves and blue flowers make it a favorite. but it should not be grown in the garden where there are children in the family.

Shakspeare thus refers to it:

Let me have

A dram of poison, such soon spreading gear
As will disperse itself through all the veins,
That the life weary taker may fall dead
And that the trunk may be discharged of breath.

ABOUT GLADIOLI

NOW to get the most enjoyment out of a collection of gladioli is something worth knowing. Perhaps my experience may be helpful to another. For some years I gave up raising gladioli; they did not fit in well with my other plants:

they did not always blossom; they faded soon and seemed to be altogether unadapted to my conditions. Finally I purchased a named collection and planted them in the garden to share with peas and beans and cabbages in the general cultivation. The

result was most gratifying. They grew strong and thrifty. At blossoming time the stems were cut on the opening of the second flower—care being taken not to cut below any side spikes—and brought into the house. Every day the water in the vases was changed, the ends of the stems clipped, and the wilted flowers removed. Treated in this way each stem lasted nearly two weeks and blossomed perfectly to the last bud. Every day added something new and in a short time the house was a glow of color. The changes which the blossoms underwent in confinement, growing more and more delicate in hue, were not the least interesting part of the color feast.

Since that summer, gladioli, even more than sweet peas, have been our chief reliance. We add each season a few choice named bulbs, a dozen or so of Childs and Lemoine, and thus have come to have several hundred bulbs. They still get only garden culture, except that when setting them I put into a hole a mixture of leaf-mold and mulch with a very little litter from the hen house. This is mixed with the sandy soil. It gives the plants a good start

and they are not so apt to feel the dry weather later on. The bulbs are set out at different times, so that the season of bloom extends from the middle of July or earlier till near the time of frost. We have come to look forward with longing to their blossoming time. They constitute in our own home a perpetual supply of sunshine, and they carry it to the sick, the shut in, the flowerless poor, the weary girl behind her desk in the city, the tired mother with her many cares, and to the aged who are too feeble to cultivate flowers but still love them passionately. They are our floral bank which never fails to honor a draft.

In the autumn, when they are taken up, the bulbs are grouped and labeled in accordance with the planting record and the notes kept through the summer. Selections are made for the friends to whom we wish to send a gift or with whom we make exchanges, and the body of bulbs is put away in condition for the spring planting. Any plant becomes interesting when you make a special study of it, and the gladiolus is an excellent subject to begin with.—*Vick's Magazine*.

DAHLIAS.

WHERE dahlias are propagated from cuttings the dry roots may now be placed in a gentle heat to start them. The usual way is to place the tubers on the bench or table or in shallow boxes, and cover them with soil to the crown. The cuttings are taken when the shoots are some three or four inches long, and put in sand to root. Two or three buds should be left below the cut to produce more shoots, from which cuttings may be taken in the same way, and the process repeated till as many cuttings as may be wanted are procured. In this way a single plant or clump of tubers may be made to produce a great number of cuttings. Such

amateurs, however, as grow plants in a small way can get as many plants as they want by dividing the tubers after they have begun to grow, and in this case the tubers need not be encouraged to grow for some time yet, at least the double flowered varieties. We rarely get perfect blooms from the double varieties before the approach of cool weather, and little is gained by starting them early. Something may be gained, however, by starting the single flowered varieties in March, as we expect them to bloom both early and late. Seeds of the single kinds may be sown now.

THE CYCLAMEN

BY

WM. BACON, ORILLIA.

THESE delightful winter and early spring flowering plants have of late years been so much improved that we shall scarcely recognize the small, comparatively insignificant blooms we used to meet with, in the splendid, large, broad-petalled, distinctly colored forms and highly scented types of this flower, now so plentiful. They are now of a very robust constitution, remarkably free blooming, and in every way well adapted to house cultivation, and as house plants have few equals, if any superior. Few flowers respond with such a generous profusion of bloom, to moderate care and cultivation, as does this plant. This fact is impressed upon me more every



FIG. 2652. THE CYCLAMEN.

season as I look upon the magnificent array of color, smiling as they stand upon the benches, clean, bright and cheerful, like the refreshing greetings of the sunbeams after dark and dreary days. It gives a thrill of real delight, such as the millionaire cannot abstract from the intrinsic worth of his gold, as we approach them and count, as I did this morning, on one plant nearly 100 perfect blooms, and buds uncountable, nestling at the base of the leaf stems and on the crown. To the ladies, let me say, this attractive and

very useful plant, flowering from October till August, is very easy to manage, even to growing from seed. Sow in a small box about two inches deep, in a soil of a light nature, press the seed its own depth into the soil with a flat piece of board or shingle, and cover lightly. Place in a temperature of 55 degrees or thereabouts, cover with glass for a while in order to keep slightly moist, not wet. After a while lift the glass and keep evenly damp. You will soon see the bulblet appear.

Then as soon as they have two leaves, if they need more room prick off into another box farther apart, or better still, into small or two inch pots singly. This is the better way, not five or six in a pot. Grow on and give plenty of air, and don't let the hot sun strike them directly, as they are fond of shade, especially in the hot days of the fall and spring months. Repot as soon as the roots move well to the pot, and let the soil have a little well decayed manure mixed with it; drain the pots well. Keep them growing at 55 to 65 degrees and will soon be rewarded with bloom that will surprise you.

Keep off green fly and thrip. Watch them closely on the younger leaves, and if they appear, ask a friend who smokes to throw a whiff or two under the leaves and the flies will fall so that you can easily destroy them.

If you wish to keep your corms till a second season, don't dry them out to a withering degree, but simply let them rest with sufficient life in the soil to give nourishment to the bulbs in which lies all the vitality for a greater abundance of bloom next season. Start them afresh by watering more freely any time from August to October, as you may wish them in succession; also grade the temperature, as you may wish to keep back or hasten into bloom.

EXPERIENCE WITH CANNAS

G. A. WOOLSON.



FLOWER OF CANNA AUSTRIA,
TWO-THIRDS NATURAL SIZE

FIG. 2653.

THE advent of *Canna Austria* marked an important era in the culture of these semi-tropical plants, which are now considered so essential to every lawn. The foretelling of its glory impressed me favorably, hence a fine specimen was duly installed in a prominent bed in my garden. Somewhere I had read that the variety "did best in poor soil." This I did not in the least believe, for I had had long and intimate acquaintance with cannas of many kinds and had fully demonstrated their ability of appropriating for personal glorification the desirable elements in the richest and strongest soil which the ingenuity of man could concoct. Consequently I expected to break all previous records of the new acquisition.

Cow manure was liberally spread over the bed and the soil forked over and thrown out. Just what the excavation was filled with I positively refuse to tell. However, the reservoir was to serve as bank account for the

plant to draw from later on. The soil was then thrown back and the bed got in shape. All went well for a while. Fine fresh leaves unrolled rapidly, but after a little they blanched strangely, turned brown and withered.

"Drench it with plain straight water," was the advice given, but of no avail. The roots had struck the reservoir, and deluging the soil only choked them with a bigger drink. My "centre piece" was facetiously commented on. The roots were lifted in the fall, and as they were sound, but not vigorous, were ensconced in a 10-inch pot, given indifferent soil and placed in a sunny bay window. Liquid fertilizers were dutifully passed on to more appreciative cannas, nevertheless nothing but leaves resulted; these were good to look at, and Madame Crozy and Gen. de Miribel made up all deficiency of bloom, showing what a canna should and could do indoors in midwinter.

Last spring I cut down the stalks and divided the root growth into thirds; two of these were repotted in ordinary soil and a moderate allowance of liquid fertilizer given occasionally, but out of door pot culture was no more fruitful than that indoors, in fact the foliage was less luxuriant, owing to the more rapid evaporation of moisture in the open air. The third section was located in the poorest vein of soil my garden could furnish; some water was of course given, but assuredly the subject was not "fussed with." As a result thereof there stands in that unusually barren spot a robust plant stretching its glorious spikes of clear yellow to a height of six feet. Individual flowers measure fully six inches across, and the larger petals are fully two inches wide. Obviously *Canna Austria* is a law unto itself, a fact de-

monstrated at the expense of a little personal conceit.

A dwarf canna (Nellie Bowden) growing close by, looked quite like a small edition of its "lily-flowered" superior. It is the only canna which might properly be called dainty looking, and it is that in leaf and flower, as both are small, trim and slender. The color

is a little deeper yellow and lacks the clear transparency of petal; the two smallest petals are stained with red much deeper than the faint dots of Austria. This is also a free bloomer out of doors, but has never done anything indoors. The extreme height thus far attained is 38 inches.—*Am. Agriculturist*.

THE CRIMSON RAMBLER ROSE.

BY T. H. RACE, MITCHELL.

"I AM sure," says the editor of National Stockman and Farmer, "that many readers of this paper have this beautiful rose but they do not all have it, as they sometimes drive in to my place to see the Ramblers in bloom. About four years ago I planted a dozen of the Ramblers, and now they make a grand showing on the green lawn. What I particularly want to say about this rose is that once you have it started it will take care of itself, and is insect and disease proof, which can be said of very few beautiful flowering plants. We all love beautiful flowers, and if we can have them without too much nursing and petting we want them, and of that class the Crimson Rambler is one of the best."

Every word of the foregoing is true about the Crimson Rambler. But even this thing of beauty is likely to have a popular rival in the more delicate Dorothy Perkins. I have two of the latter blooming this year; one-year-old plants planted a year ago, and they are pleasing me very much. The stock is more slender in its growth than that of the crimson and the foliage is somewhat finer and brighter green. The individual bloom, a soft pink in color, is no larger than the crimson, but it is finer and fuller, and the clusters are quite as heavy. Being slender in growth, it is easily laid down, and mine came through the winter with no covering except the snow.

FALL PLANTING OF ROSES.

BY

T. H. RACE, MITCHELL.

I AM asked if I would recommend planting Rambler roses in the fall, or any other class of roses. I decidedly prefer fall planting for all out-door roses. Last fall I planted a number of Ramblers, crimson and pink, two-year-old bushes, and left shoots two feet long. This year they are covered

with a mass of bloom, as if they had not been moved. This spring I planted a row of twenty crimsons in very strong ground. They were strong two-year-old plants, and are doing well, but not blooming like those planted in the fall. My experience is the same with all other kinds of roses.

OUR OUTCAST GARDEN FOLK

"After all, nothing prospers like weeds, all the world over ;
Nought makes them rue, neither cold nor heat nor
drought dismays them ever."

ON a bright day in spring, while wandering round one's garden, it is impossible not to give a thought sometimes to the poor outcasts, who would like to live in it, but who, for the most part, are destined to a very different fate—the burn-heap of the weeds. It may be that there are not so very many of them about, for the weather may have been dry and the season late, but they are only biding their time; the first warm shower will find them pushful as ever, and there will be plenty of enemies to challenge them at the gate.

Scores of very particular people there are, who simply cannot pass a dandelion without rooting it up, or a daisy (especially in the lawn) without longing for a fork. Nettles of all sorts, even the pretty white and

yellow ones, as also do thistles, vetches, and spurge, all of which are very fond of intruding into gardens; they are known to be troublesome, and have bad characters.

The measure of morality, as applied to plants, seems to vary as much as it does with reference to the human family. The pariah of one place becomes the pet of another. Like the question of how many wives it is expedient for a man to have at a time, much depends on latitude and longitude. In different parts of the country, in the same week I have heard the same plant—the grape-hyacinth—spoken of as "that pernicious weed," and "the precious little blue flower that lives in rockeries." When and where make all the difference; it is possible to have too much even of a good thing, and numbers of pretty common flowers, by making themselves too cheap, earn the opprobrious and scarcely-deserved epithet of "weeds." Marigolds are flagrant offenders; gay in color, and gifted with a pleasant bitter-sweetness, at times they are a plague, and I have myself suffered many things of my favorite oxalis. Only last year it threatened to swamp us in clover, wanting to carpet the rose beds, and make an emerald setting for the geraniums. We rooted it up, scattered it, and dried it in the sun. In vain; it always turned up a short time after, smiling, and apparently unconscious of any check.

To many people weeds have a peculiar fascination. Their very wildness appeals to an instinct of human nature; that is by no means unaccountable, but one has to dive below the surface to understand it. The same Bohemian spark it is that makes us enjoy uncomfortable picnicing and the trials of life in camp; that lends a charm to every kind of sport, and sends the Englishman hunting for wild things all over the



FIG. 2654. AN ARRANGEMENT OF OX-EYE DAISIES,
WILD PARSLEY AND FERNS.

globe. We cannot all of us, in pursuit of new daffodils or orchids, rush after these wildlings, to look for them in their native haunts, or track them in the dim recesses of the jungle; but another field is always open, if we will only look for it. At our feet it lies, and it is well worth exploration. The very best place I know of for studying weeds is one's own garden, and the next best places are other people's gardens. What with winds and wild birds, we need never fear the supply of specimens will run short.

On the whole,, other people's gardens are the most entertaining on account of their variety. Country houses of friends, hotel gardens, and the houses we own for a season affords us opportunities. The weeds vary, of course, with every locality, and most gardens provide something fresh, if it be only a stowaway, that has come from afar, in moss, or litter, or packing stuff. Such errants are misleading, but they add to the excitement of the chase.

It was once my good fortune to own a garden in gravel-land, near a forest. A half filled gravel-pit that had been left in it was a paradise for weeds; never to be forgotten was the way the trefoils, thrincias, and cat's ears flourished in the sunshine. Most beautiful of all were the tufts of viper's-bugloss, its fuzzy green leaves and clusters of brilliant blue flowers, dazzling between the yellow earth and sapphire sky, blue against blue. A chalk garden has many delightful weeds, and so has a garden that owns a stream or lake, all different, with differing ways and scents.

When one comes to think of it, what an untold debt of gratitude we owe the weeds of by-gone centuries. How about those that were good enough to turn into coal, and are now burning for us? A coal-box is not a usual place for the study of botany, but one might do worse than turn one over, now and again, in search of floral impres-

sions. Lignite, of course, is better; being in the transition stage, it is quite easy to pick out little stems and stalks. Two friends, one a geologist and the other a botanist, once took me for a walk, and for fear of being considered a wild romancer, I will not say how many kinds of weeds were recognized in some seams of lignite, brown and black. In fact, had everything we came to not been in a fossilized condition, we could have had an oyster feast out of the rocks, and salad to go with it.

Sometimes in gardens one comes across an unattractive outcast, commonly known as the horse-tail. At sight of this small weed an imaginative mind may take a leap backwards across past æons, and see the horse-tails as they used to be, when, giants in the land, they lived along with the mammoths of the period, the slow-moving reptiles and the silent lizards, half fish, half bird. We must forgive this homely weed its flowerlessness and want of beauty, for the sake of the tales it dumbly tells us.



FIG. 2655. A BEAUTIFUL ARRANGEMENT OF WILD FLOWERS.

Others we have to pardon, remembering the many good turns they do for us in the country and in town.

Their role it is, not only to make the lovely more beautiful, but also to beautify the unlovely. Over the hedgerows they scatter showers of gipsy-roses, the lanes they stud with starry stitchworts, white as milk, along with cuckoo-loving campions, lilac scabious, blue chicory, and all the other weeds that lead their lives 'twixt dusty road and meadow grass. No barren space, be it

railway cutting, neglected churchyard, or any other vacant spot, is left unfilled, at any rate with leafage.

"Soon is the foliage soft and green
Drifts of hawthorn fall for a sreen."

Through all the changing seasons from spring to winter's fall, the weeds and wild-lings are very busy filling gaps and making backgrounds for us. Let us be grateful, and look with lenient eyes even upon our "outcast garden-folk."—*The Gardener's Magazine*.

IVY FOR PICTURE FRAMES.

IVY is one of the best plants to have in the house, as it bears a large amount of neglect and abuse, and gratefully repays good treatment. It is not rare to see a pot of ivy placed where it can be trained around picture frames or mirrors, and thus border them with living green. A good plan is to dispense with the pot, or rather have a substitute for it, which is kept out of sight.

Our illustration shows a picture frame wreathed with ivy after this method. Only a good-sized picture or mirror can be treated in this way, and as such are usually hung so that the top of the frame leans forward, the space between the frame and the wall is available for the receptacle for the plant. A pot or pan of zinc, of a wedge-shape, and size to suit the space between the frame and the wall, can be made by any tin-smith. This is to be hung against the wall so as to be quite concealed by the picture, and the ivy tastefully trained over the frame. A rustic frame is better suited to this purpose, as it not only affords better facilities for attaching the stems to the frame, but its style seems better adapted to this kind of decoration than more pretentious ones. Still, a gilt frame may be made beautiful in the same way. There is only one precaution to

be used, viz.: Not to hang such a frame over the fire place, for the combined heat and dust would soon destroy the plant. Let it hang so that it may face a north or east window. Don't forget the water; the pan holding the plant is out of sight, and, therefore, should be kept in mind.



FIG. 2656. IVY FOR PICTURE FRAMES.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

Question Drawer

WISTARIA NOT FLOWERING.

SIR,—Could you through the columns of your paper give me any information how to make a white Wistaria blossom. It has been planted about ten years against a south wall, slightly under an overhanging roof. I have tried partial roof pruning, and have tried spur pruning as well as less severe top pruning, but no plan seems to induce it to bloom. The plant has a fine healthy foliage but no blossom.
Toronto, Ont. F. W.

Answered by Wm. Hunt, O. A. C.,
Guelph.

Wistarias are sometimes very fickle and difficult to induce to flower. The overhanging roof mentioned is certainly of no benefit to the plant in this respect.

I would recommend that the plant be well pruned back late this autumn, or still better

early next spring, and if possible the plant removed to a more open position. If this—from the age and size of the plant—is not practicable, dig a trench around the plant about 3 feet from the base of the stem, about 2 feet deep and 1 foot in width. Fill this trench with fairly large stones, rubble, or gravel, so as to confine the roots somewhat more than they probably are at present. I tried this plan once on a plant of Wistaria that had been planted for eight years without flowering, and it proved quite successful in bringing it into flower. This plant I purchased for a white Wistaria, but it proved to be a worthless variety with short stunted racemes of dull blue flowers.

not worth growing. It was probably the variety known as *Wistaria brachybotris*, or the short clustered variety.

A good specimen of the white *Wistaria* is seldom seen, the only one that I know of in this section is a plant growing on the verandah of a house at the northwest corner of Herkimer and Macnab streets, Hamilton. This specimen could be seen flowering beautifully every year in July, and was a pleasing and conspicuous ornament to the residence.

PLANTING PEONIES.

SIR,—I am planting some peonies in the fall, and as the soil is very poor and sandy, would you kindly tell me whether I should replace the sand with some other good soil that would be better for peonies. If not, what kind of fertilizer would you advise me to enrich the soil with, and how deep should I plant the tubers.

London, Ont.

SUSCRIBER.

Answered by Wm. Hunt, O. A. C., Guelph:

If the soil is very sandy, it would be best to remove it to about a spade's depth and replace the same with a good admixture of well rotted manure thoroughly mixed with it. Fertilizers would be of very little use in very sandy soil. Each plant should have a space of ground prepared for it in the manner I have mentioned at least two feet square.

The tubers should be planted so that the tips of the young crowns are about half an inch under the surface of the soil. A mulching of long strawy manure about two inches in thickness placed over the plants in November would benefit them. Remove the mulch in early spring.

OPENING FOR EUROPEAN MARKETS.

Will you kindly permit me to use the columns of your valuable paper to call attention to a number of lines in which I believe an excellent opportunity is offered for the extension of our trade with Germany, Belgium and Holland.

At the present time there appears to be a good opening for trade in fresh, dried and evaporated ap-

ples in Germany, where the latter pay a duty of \$1.25 per 110 pounds and the former enter duty free. It is true that an act has been passed imposing a duty on fresh fruit from Canada, but it has not been brought into force, and will only become operative by Imperial proclamation. Large quantities of evaporated apples from the United States are sold annually in Germany, and as the quality of the Canadian goods is admitted to be better, there is no reason why we should not be able to compete with the Americans.

In Holland only fancy evaporated apples are wanted. The duty is 5 per cent. ad valorem for both fresh and dried fruits.

Belgium will take considerable quantities of both dried and fresh fruits, particularly Spy, Baldwin and Greening apples in boxes. Fresh apples are free of duty, but 10 per cent. ad valorem is collected on dried and evaporated goods. Canadian cheddar cheese, if mild, will sell even in competition with the best Holland. It would bring about 20 cents per pound retail, leaving an ample margin for profit after paying freight and commission, and the duty, which is slightly over one cent per pound. It is particularly to be noted that only a mild cheese is wanted. Belgium takes annually 23,000,000 to 32,000,000 pounds of Dutch cheese, 6,500,000 pounds of Swiss Gruyère, and 2,100,000 pounds of fine cheese from France. Practically none is made in Belgium. Tinned meats, game, poultry and tinned tomatoes are also in demand.

If Canadians are to secure a share of this trade they will have to get out and "hustle" for business. The merchants as well as the consumers of Belgium and Germany are very conservative in their tastes and methods, a statement that we often hear but do not fully appreciate. Americans and Canadians will buy and test a new article simply because it is new, but with the European consumers the opposite is the case. The merchants over there have their trade established and are content. Why should they change? We must show them that it would be to their advantage to do so. In this connection I desire to emphasize particularly the advisability of Canadian shippers sending over liberal samples of their food products for distribution. They will find it profitable to do so, and to quote prices freely. At first goods would have to be shipped on commission, but when a footing is gained business can be done on a cash basis. It is, of course, necessary above all things that goods shipped shall be carefully packed and true to sample, as this is the only way to gain and hold the confidence of the merchants.

It may be mentioned that the Canadian agent in Belgium, Mr. D. Treau de Coeli, 75 Marche St. Jacques, Antwerp, will be glad to answer inquiries and to give all the assistance in his power to enable Canadian shippers to make satisfactory connections in that country. If liberally supplied with samples, he will see that these are properly stored and distributed to the best advantage as occasion offers. Among the firms who may be consulted, and who will handle consignments on a reasonable commission, might be mentioned Alfred B. Steffens, Hamburg & Luisenhof, Germany, and J. Tas, Ezn, and the North Atlantic Trading Company, both of Amsterdam, Holland.

W. A. MACKINNON,
Chief, Fruit Division.

DUCHESS APPLES IN GLASGOW.

Mr. John Brown, Dominion Government Inspector at Glasgow, reports that the first shipment for the season of American Duchess apples arrived there on the 3rd of August in good condition. They sold at prices ranging from 12 to 21 shillings, notwithstanding the fact dealers showed some hesitation in taking such early fruit.

WHAT THE FRUIT INSPECTORS ARE DOING.

Mr. J. J. Philp, Dominion Fruit Inspector of Winnipeg, is coming east and will address a number of meetings in the fruit growing sections of Ontario. There are great possibilities for Ontario fruit in Manitoba and the Northwest, and Mr. Philp hopes that the information he will be able to give regarding the western markets will be appreciated by the eastern growers and shippers. Full instructions will be given regarding the quality of fruit and shape of packages wanted in the west. Meetings have already been arranged for Chatham, Burlington and St. Catharines, and it is expected that others will be held at Walkerton and some other fruit centres. After the meetings are over Mr. Philp will spend some time doing inspection work through Ontario and at Montreal, so as to become thoroughly familiar with the methods practised in the east.

While Mr. Philp is in the east Mr. J. F. Scriver, the Montreal inspector, will take his place in Winnipeg to study conditions and get in touch with the dealers and consumers in the west. Lieut. Vroom, Nova Scotia inspector, who was a member of the Bisley team, is now returning to Canada by the Tunisian. After the shooting was over he spent a few days studying the conditions of the fruit trade in the chief British markets, and will be able to take up his work in Nova Scotia with a better understanding of the requirements of dealers and consumers in the Old Country.

Mr. A. McNeil, senior inspector, will have charge of the Fruit Division's exhibit at the Toronto Industrial Exhibition and will also conduct the packing demonstrations.

OUR BOOK TABLE.

American Horticultural Manual—Part II. Systematic pomology, containing descriptions of the leading varieties of the orchard fruits, grapes, small fruits, subtropical fruits, and the nuts of the United States and Canada, by J. L. Budd, professor emeritus in horticulture in the Iowa State College of Agriculture. Illustrated by hundreds of outlines of the leading commercial fruits and nuts. Published by John Wiley & Sons, New York City. Price, \$1.50.

A most valuable work for the fruit grower, and published at a marvellously low price, considering the immense amount of work entailed upon the author in preparing the technical descriptions.

THE FOREIGN APPLE CROPS.

A Short Crop Everywhere—Higher Prices Than Last Year Should Prevail.

All reports agree that both apples and pears are a short crop in Europe, and that our Canadian stock will be in great demand. A very complete report is just to hand from E. A. O'Kelly & Co., Covent Garden, London, from which we cull the following portions:

England.—There are no crops whatever of English apples this year. The London market, as is well known, is the natural outlet for apples from the home countries. We therefore believe that the London market will be as high as it was last year, and we shall most probably see London speculators take advantage of this, to buy apples in Liverpool, send them to London and realize a good profit, as was frequently done last year.

France.—The Dieudonne district (red apple district), the Charente district (Russett's district), and the Anger's district cannot be taken into account this year. We hear from reliable information that there are no apples whatever in France, and we believe that a few good good American or Canadian apples, such as prime Baldwins, and especially Russets, might be sold with advantage there. Shippers should only send small lots, and only the very best. We are in a position to take charge of shipments for Paris.

Italy has a fair crop of apples, but they will probably all find their way to their usual outlet, that is to say, the south of Germany and Hungary.

Spain has a medium crop, but the bulk of same will be imported into France for cider making.

Germany.—There is a good middling crop in that country this year, but as the bulk of apples grown there are cooking apples, Germany will be open this year again to receive large quantities of prime red apples, and we feel sure results will give shippers satisfaction.

Holland.—There is a fair crop of apples in Holland, but the quantity of apples grown there is limited.

American and Canada.—As far as we can judge, the crop of Canadian and American apples is not quite so large as last year, but the quality is, if anything, better. We are of the opinion that this year again American and Canadian operators are going to have things their own way. There is really no competition to be feared from apple growers this side of the water. It remains for operators to act in a judicious way, and this season ought to be a good one for all concerned. In consequence of the complete failure of English and French crops of pears, apples and plums, we are sure that early apples will do well. The same can also be said with reference to pears, providing they reach us in good condition.

The editor of this journal is now (August 25) packing a carload of his Bartlett pears and Duchess apples for Glasgow, to go in cold storage on the steamer Lakonia on the 3rd of September. He will report the result as soon as he receives his account sales.

BOOKS FOR HORTICULTURISTS.

FRUIT, FLOWERS, ETC.

Amateur Fruit Growing. Green.....	\$0.50
Apple Culture, Field Notes on. Bailey.	0.75
Bulbs and Tuberous Rooted Plants. C. L. Allen.....	1.50
Bush Fruits Prof. A. Card	1.50
Canadian Garden. Mrs. A. L. Jack.....	.50
Chrysanthemum Culture. Morton. Cloth..	1.00
Chrysanthemums, How to Grow.....	.25
Cider Makers' Handbook. Trowbridge.....	1.00
Cranberries, Cape Cod. James Webb. Pa- per .....	.40
Cranberry Culture. White.....	1.00
Crops, Spraying. Clarence M. Weed .....	.25
Dahlia, The. Lawrence K. Peacock.....	.30
Evolution of Our Native Fruits. Bailey....	2.00
Floriculture, Practical. Peter Henderson...	1.50
Flower Garden, Beautiful. Matthews .....	.40
Flowers, and How to Grow Them. Rexford ..	.50
Forcing Book. Bailey.....	1.00
Forest Planting. Jarchow.....	1.50
Fruit Culturist, American. Thomas	2.50
Fruit Grower, Practical. Maynard.....	.50
Fruit Harvesting, Marketing, etc. F. A. Waugh	1.00
Fruit, The. P. Barry.....	1.50
Fumigation Methods. Willis G. Johnson...	1.50
Fungi and Fungicides. Clarence M. Weed.	1.00
Garden Making. Prof. L. H. Bailey	1.00
Grape Culturist. A. S. Fuller.....	1.50
Grape Grower's Guide. Charlton.....	.75
Grape Growing and Wine Making, American. Prof. George Husmann.....	1.50
Greenhouse Construction Prof. L. R. Taft.	1.50
Greenhouse Management. Prof. L. R. Taft.	1.50
Horticulture, Annals of. Prof. L. H. Bailey.	1.00
Horticulturist's Rule Book. Prof. L. H. Bai- ley .....	.75
House Plants and How to Succeed with Them. Lizzie Page Hillhouse.....	1.00
Insects Injurious to Fruits. Saunders	2.00
Irrigation Farming. L. M. Wilcox.....	2.00
Lessons with Plants. Bailey.....	1.10
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Nursery Book. Prof. L. H. Bailey. Cloth..	1.00
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SHETLAND PONIES

Real Shetland ponies, says *Country Life in America*, are scarcer than most persons imagine. At last accounts there were only a couple thousand, roughly speaking, on their native isles, and they are rapidly being exported or spoiled by the admixture of other and larger breeds. There are comparatively few pure Shetlands in this country and many of the ponies offered for sale by dealers as such are really half-breeds or Iceland ponies.



FIG. 2657. SHROPSHIRE DAMSON.

THE CANADIAN HORTICULTURIST

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SHROPSHIRE DAMSON

ORIGIN: England. A variety of the old Damsons from which class the Domestic plums of Europe are supposed to have originated.

TREE: Vigorous and very productive.

FRUIT: Small, one inch long by seven-eighths broad; form, oval; color, dark purple with thin blue bloom; stem, half an inch long, set in a very shallow depression; suture not traceable.

FLESH: Greenish in color; texture fine, melting; flavor, acid, becoming mild when very ripe; pit a partial cling.

QUALITY: Good for cooking, of no value for dessert.

VALUE: Market, very good.

FOR many years we have had this plum growing in our experimental grounds, and esteemed it of little value on account of its small size. Of late, however, it has risen in our estimation because of its value for culinary uses. For preserving, its small size is not a serious fault, especially since a plum does not need peeling and is not stoned, so that for domestic uses this plum, which has long been a favorite, bids fair still to hold a place in spite of the many new introductions. Indeed, there is a growing demand for this little plum which is not met by the supply, and we doubt not that it would pay to extend its cultivation, for it is a good shipper and could be sent to our northwest markets.

The Damsons, as a distinct race of plums, have been on record from time immemorial.

By many students of horticultural science they are believed to be the stock from which all the finer domestic plums of Europe have originated. There are several varieties of the Damsons, but the one under consideration is an old English variety and one of the favorites. A fruit grower of Northern Missouri says in the Kansas report of 1900:

"From observation, I believe that the Damson will be the best domestic plum here for profit, and for that reason I have planted more of them than of any other variety. After them are those of similar habits, and that seemingly have Damson blood in them, such as the Richland. Of the Damsons I have fifty Shropshires, fine growers, and they bid fair to bear young; also I have fifty common Damsons."

We would be pleased to hear from any readers of this journal who have had experience in growing the Shropshire either for home use or for market.

Mr. E. D. Smith, M. P., Winona, one of our foremost fruit growers and shippers, says:

I regard this as a good variety for growers to plant. There is always a certain demand for Damson plums, and I think there

would be still more if they were more widely known. It is also an excellent shipper to long distance markets, which is a feature that should not be overlooked seeing that so much of our fruit business will have to be done with distant points.

Mr. Harold Jones, our experimenter at Maitland, says:

This plum is unknown by this name in our district. The so-called Blue Damson is hardy in wood and bud, but a shy bearer. Plum of poor quality.

Editorial Notes and Comments

MR. THOS. PEART, father of our experimenter, Mr. A. W. Peart, of Freeman, Ont., passed away on the 4th of September last.

THE BRITISH APPLE market seems to be rising instead of declining, as the season advances.

PLUMS were in great demand in England this season. Some cases of about twenty-two pounds' weight have sold as high as \$2 each, while peaches in cases of three dozen have brought as much as \$3 each.

THE APPLE MARKET is in an excited condition, owing to the unusual failure in England and on the continent. Growers in Ontario ought to get at least \$2 a barrel for the fruit in their orchards.

CHICAGO is an excellent market for Canadian Northern Spy. Immense quantities are stored annually in the cold storage houses there, and held until the following spring at a temperature of 33 degrees, or in some instances 31 degrees.

BARTLETT PEARS should be held at a temperature of 32 degrees F. Experiments on this point are in progress by Prof. Reynolds, of the O. A. C., Guelph, which we will publish as soon as completed.

A FORTY POUND BOX is a very suitable package for either pears or apples; that is, a box containing 40 lbs. of fruit. For pears

the box we are using for apples this season, 9 x 12 x 18 (inside), will do; but apples are lighter in weight, and the net weight of the same boxful of them is only 37 lbs.

FOR BARTLETT PEARS we have found a half box very suitable for export, measuring inside 5 x 12 x 18, and taking the fruit two deep. These cases have netted us from 75c. to \$1.

THE PRINCIPAL VARIETIES of French pears put upon the British market are Williams (Bartlett), Glout Morceau, Beurre Hardy and Duchess.

FOR EXPORT FROM ONTARIO we have found Howell, Duchess, Bosc, Triumph de Vienne and Anjou excellent. The Bartlett is risky, but all right if landed in good condition.

A LONDON FIRM (England) says of the Bartlett pear: We certainly think that, seven years out of ten, there will be an opening here for this variety, provided it arrives clean and in good condition.

AT WALKERTON the principal varieties of pears shown are Clairgeau, Duchess, Anjou, Winter Nelis, Sheldon, Kieffer, Boussock and Flemish Beauty.

POULTRY IN AN ORCHARD is a wise provision against codling moth. Mr. Sherrington, Walkerton, has about one acre fenced off for his chickens, and the apples in this

part seem to be almost entirely free from worms. The pure bred Plymouth Rock is his favorite.

CANKER WORM is very troublesome in some parts of Ontario. Spraying with Paris green is effective only if done when the worms are very small. The best remedy is to cut strips of heavy paper, fasten one as a band around the trunk of each tree, and smear with printers' ink. If this is done in October, and kept sticky until frost, and again in April and May, the female (being wingless) will be unable to climb the tree to deposit its eggs.

THE HILEY PEACH, of Georgia, was awarded the Wilder medal at the recent meeting of the A. P. S. at Boston. This medal is given only to one new fruit each year, the one shown the committee which possesses the most decided merit.

PROF. CRAIG, speaking of "The Ideal Fruit Growers' Home," said, in part: "To secure the ideal fruit grower's home let one give attention first to the site, so that he may enjoy beautiful scenery that shall relieve the monotony of daily toil. Let the home be dignified, of simple beauty, without gingerbread ornaments, and the ideal home should be built so as to save steps. With a modern system of lighting, rural telephone and rural delivery, are we not enjoying the comforts of the city without its distractions? But what is more important is the family life within the house, the harmony that results from the expression of each individual's life with due regard to the others of the household."

TO VISIT THE VARIOUS FRUIT DISTRICTS.

IN the present issue the editor begins a series of notes on his visits to the various fruit districts of Ontario. His plan for 1904 is to seek a personal interview with the more prominent fruit growers or gardeners in some one district each month, to secure photographs of their orchards, homes and

faces, and to gain from each part of our country those pointers which seem to be of interest or profit to other sections.

ENCOURAGING TO APPLE GROWERS.

A FEW years ago many were so utterly discouraged with the low prices of apples that they were rooting out all their trees. Now the situation is reversed, and the apple is the most valuable product of the farm.

A British correspondent of the *Farming World* writes:

Canadian apple growers ought to have a successful season, for the supply of home-grown fruit in this country is extremely short. There are many orchards which will yield practically no fruit at all. This applies equally to eating, cooking and cider apples, and in many of the poorer homes the apple pudding, which is a favorite dish, will be missing from the table. Not only is the apple crop here short, but I understand that on the continent of Europe too there are hardly any orchards yielding up to the normal. This is especially the case in Normandy and Brittany, whose far-famed apples this year will not be in great evidence. A well-known cider manufacturer over here has been scouring the country for the past three or four weeks in an endeavor to buy apples, but up to the present he has not yet obtained sufficient for his requirements.

The coming season ought to begin earlier than usual for Canadian apples, while prices too bid fair to be on the upward grade.

W. Dickhuth & Sohn, of Hamburg, write:

As the new season is approaching, we take great pleasure to inform you that our home crop of apples is a failure. It is a matter of fact that we can grow no more table apples in this country for years, but this year we are even without the cooking varieties. The heavy snowstorms just at the time the apple trees were in bloom has destroyed them. Although we shall want

our requirements from your country, nothing but the first grade should be shipped, apples quite clean, free of spots and scabs.

THANKS.

THE editor desires to thank Prof. H. L. Hutt, of the Ontario Agricultural College, for his kindness in reading proof of manuscript left for the Journal during the absence of the editor in Europe, and in adding to the Notes and Comments and to the other matter according to his good judgment; also to thank Mr. G. C. Creelman and Mr. T. H. Race, members of the editorial committee, for their kind assistance during his vacation tour.

A GOOD EXHIBIT.

OUR fruit stations sent in a very large and creditable exhibit to the Industrial this year, and yet, among so large and yearly increasing a list of varieties it is surprising how few are really desirable for any one district. The decision of the board that next year the experimenters must divide their exhibits so as to show the kinds that are valuable, separately from those that should be discarded, will make the exhibit of far greater value.

In Mr. Hillborn's collection of peaches we noticed some wonderfully fine samples of the Fitzgerald. With us at Maplehurst this peach has not equalled the Crawford in size, and, being of nearly the same season, we have not commended it very strongly. These samples, however, were so large and fine that they surpassed even the Early Crawford. The Wickson plum in his collection was larger than that shown by Mr. Mitchell, our plum specialist, but this simply shows that in Essex this plum is a little earlier and possibly succeeds a little better than it does in the County of Grey. At Maplehurst this plum is showing up grandly this season, and if, as the tree increases in size it also becomes more productive, it will be one of the finest of the Japans.

When fully ripe it is delicious eating, and in size it certainly beats them all.

In Mr. Dempsey's collection of apples from Trenton, we find, as usual, the Ontario, Stark, Ben Davis and Fallawater prominent, although he acknowledges that the Fallawater is rather disappointing in productiveness. There are over 150 varieties in Mr. Dempsey's collection, rather a bewildering lot to the novice who wants to know what he ought to plant. Next year, when separated into classes, it will be exactly what such a man will wish to see and study.

Mr. Jones, of Maitland, shows a fine collection of the hardier varieties of apples and plums. Among the apples we notice good samples of N. W. Greening, Milwaukee and McMahon White.

In Mr. Caston's collection, from Craighurst, among many other kinds we observed the Shackleford and the Peerless, western varieties of some promise. His Alexanders and Baxters were especially fine, showing them to be adapted to that section.

Mr. Huggard's exhibit from Whitby, was large, but needed such classification as will be made next year in order to be of real value.

Mr. Mitchell's splendid collection of plums from Clarkson, Mr. Pettit's extensive collection of grapes from Winona, Mr. Peart's samples of commercial pears from Burlington, and Mr. Sherrington's commercial apples from Walkerton, all alphabetically arranged, are also deserving of special notice.

The whole was under the able superintendency of Mr. W. M. Orr, of Fruitland, Ont.

FRUITS THAT WILL PAY.

THE market conditions in Ontario are changing so rapidly that it is only by the most intelligent planting and the top grafting of orchards already planted that the fruit grower can keep up with the de-

mands of the trade. Ontario is a wonderful fruit producing country, and it did not take many years for it to produce more peaches, plums and grapes than its own markets could take. This year these fruits have reached the lowest prices upon record, and in many instances the grower has received back less than cost, and has found it better to let his fruit waste than gather it. Fortunately just at this point the cold storage facilities on the ocean and the almost unlimited markets of the great northwest are affording an outlet at annually advancing prices. It will henceforth pay our fruit growers to plant only such fruits in quantity as will carry well to distant markets, and to plant sparingly of many old but tender favorites, such as early apples, early peaches and tender fleshed plums, and, where possible, to top graft old orchards of such fruits to sorts better suited to our changing conditions.

FEWER VARIETIES.

MOST of our orchards are filled with all the varieties that were offered by the agent who sold the trees; they were not planted with an expert knowledge of what the markets required, and consist of so many kinds that in making up shipments for export it is now found almost impossible to make up straight car lots of any single variety. Herein lies a great mistake, for even when neighbors combine to make shipments they find it necessary to mix the kinds and the returns are considerably lessened in consequence.

FRUIT GROWING NORTHWARD.

AN important meeting of our fruit experiment station board was held on Wednesday of the last week of the Industrial Fair in the Farmers' Institute tent. Suggestions were received from the experimenters and also from the executive of the

Ontario Fruit Growers' Association regarding the best means of extending the work. A proposal to have a testing station at Powassan brought out a discussion of the advisability of encouraging fruit growing in the sections of country lying north of the Georgian Bay and known as New Ontario. If it were wise to do this it is claimed that the station should be placed farther north, at such a place as New Liskeard, for example, which is situated on the line of the railway and in the centre of a large and growing settlement of people from Old Ontario. Some thought it foolish to encourage the planting of fruit trees of any kind in a country where the conditions were not favorable to the best success; but, on the other hand, it was pointed out that there were varieties which would succeed, and a testing station could soon find these out and thus save the farmers a great many dollars which would otherwise be wasted in buying varieties at random from travelling agents.

Finally it was decided to appoint Mr. G. C. Creelman and Mr. L. Woolverton a committee to investigate the matter and report at the next meeting of the board.

Mr. Thos. Southworth, Director of Colonization, says of the Temiskaming section: "I found things in the Temiskaming country in good shape. The towns of New Liskeard and Haileybury are growing very fast. The latter was at a standstill for several years, but owing to the building of the government railway through that point business is brisk. I counted from 30 to 40 new frame buildings in course of erection when I was there."

A HORTICULTURAL BUILDING NEEDED AT THE INDUSTRIAL.

AT the meeting of the Board of Control above mentioned, complaint was made by the secretary that the exhibit of the fruit stations was not distinct enough

from the general exhibits of fruit growers to enable fruit growers and farmers passing through to appreciate its real value.

The subject was debated with much interest, and every one concurred in the great importance of a better and more distinct installation of the exhibits of our fruit stations. One object of their establishment was to point out to planters the varieties desirable in each section, and another was to warn planters against those found worthless or otherwise undesirable. Now, if we can secure proper accommodation at the Industrial, we will be able to make separate sectional exhibits, showing in one class the varieties that may be planted with profit; in another, those desirable only for home uses, and in another those which are a failure, or for other reasons not worth planting. If each station makes these divisions, and arranges each class alphabetically, there will be no exhibit at the fair of more interest to our farmers.

Mr. A. McNeill, fruit inspector from Ottawa, was also present, and regretted that at present he could find no accommodation in the space set aside to the fruit experiment stations for his demonstration of fruit packing for the export trade. He had two assistants at work wrapping pears and apples and packing them in cases, and this exhibit was of great importance to fruit growers, but he was compelled to set it up in Machinery hall. He hoped that another year the Board of Control would be able to provide space for this.

A special committee was appointed to prepare plans for a fruit growers' building, seek a site, and report to the annual meeting of the Ontario Fruit Growers' Association, which meets in Leamington next November. In this committee the following persons represent the experiment station board: Messrs. G. C. Creelman, W. M. Orr and Prof. H. L. Hutt, and to represent the Ontario Fruit Growers' Association,

Messrs. W. H. Bunting, A. McNeill and L. Woolverton.

FRUIT GROWING IN THE NIAGARA DISTRICT.

OUR friend, Mr. W. L. Smith, editor of the Sun, has been through the Niagara fruit district, and is quite enthusiastic over its capabilities. The Armstrong orchard, at Queenston, with 1000 St. John and 1,000 Early Crawford peach trees, six years planted, is noted, with a crop of probably 8,000 baskets. This is its first year of bearing. These are certainly two of the finest varieties for our home markets, and in their season we know of no peaches to equal them for any purposes. The Yellow St. John just precedes the Early Crawford, and is over when the latter comes on. The only question in our mind about such large plantations of these excellent varieties is the limitations of our near markets, for when these are filled, some firmer variety, that would carry to some less favored district, is more to be desired. Mr. Armstrong's tomato patch of 10,000 plants is also mentioned, and is reckoned by him to yield 10,000 baskets of fruit this season! rather an enormous yield, which we should judge to be an overestimate. We referred to Mr. Armstrong's success with tomatoes a year ago, and certainly he demonstrates what can be done even with such an every day crop. He makes money out of them by marketing about a third of them in July, much in advance of other growers.

HORSE POWER VS. MAN POWER.

THE contrast between English and Canadian methods of cultivation is very marked. Elsewhere we have described Mr. Cheal's method of cultivating his nursery at Crawley, in the south of England, and how he divides his fifty acres into small garden patches, all worked by hand.

Such a method would be ruinous on a Canadian farm.

The Sun notices Mr. E. Morden's method at Niagara Falls South, by which he avoids hand labor almost entirely. He is a most thorough cultivator, and keeps his whole place under the densest cultivation with the least possible expenditure. To quote from the Sun:

Mr. Morden practices this through system of cultivation, not only in his peach orchard, but in his other plantation as well. In order to facilitate this work, as applied to grape culture, he has adopted a system that I have found applied only on his place. For the support of his grapes, he uses only one wire. This wire is not nailed to the side of the supporting posts, but on top of them. This top nailing adds to the strength of the support and facilitates removal of the wire when necessary. The trunks are kept clear to the height of the wire and the vines are festooned over the wire. They thus, in a measure, become like trees. You can pass under the wires at any point and can work about the trunks as freely as about the trunks of peach trees. With the aid of extension machinery, practically the whole work of cultivation can thus be done by horse power.

"That simple device," said Mr. Morden, "has reduced the labor of cultivating my vineyard to one-fifth what it was when I had four or five wires."

The same system is applied in his raspberry plantation. Although Mr. Morden grows the varieties of raspberries that propagate by suckers, he does not permit the plants to grow in solid rows. In planting, he sets the plants four feet apart with a space six to eight feet between the rows. Then he cultivates both ways.

PACKING APPLES.

VAN DYKE, of Grimsby, who purchased an apple orchard just when the original owners had become discouraged waiting returns, has just come in for a full crop of apples, probably 3,000 barrels of Baldwins and Greenings, and with the high prices of apples now prevailing he may nearly clear off the purchase price. Apples are now one of the most satisfactory of orchard fruits. VanDyke has made six sorting tables, on which the fruit is emptied by the pickers, instead of upon the ground, as is usual. These tables are made to fold, and have canvas tops to hold the fruit. They are about twelve feet long, and will hold about two barrels of apples at a time.

On these the fruit is emptied by the pickers in the orchard, while the packers sort them, barreling the ordinary stock and sending the extras to the packing house for boxing.

At Maplehurst we use a wooden table, which slopes toward the packer, so that the fruit will roll toward the barrel, while the extra grade is taken out for boxes. We are doing the whole of our packing in the orchard this year as fast as the apples are picked.

WEEKLY EXPORT SHIPMENT OF BARTLETT PEARS.

WE have been shipping a car a week of Bartlett pears in cold storage to Glasgow, and find the orchard packing the only place for quick handling. We did not wrap them, but packed in half cases 5 x 12 x 18, with layers of excelsior. The pickers emptied their baskets in the packing table, and the packer, with one assistant, put up about two hundred cases a day. Every night these were sent to the refrigerator car, which at the end of each week was re-iced and forwarded to the ocean steamship for Glasgow, Scotland. In the car the temperature would average about 45 degrees, but in the ocean storage about 35. In our judgment this is too high for the best results, and 33 degrees would be much to be preferred.

We give this much detail of our private business because all fruit growers have a common interest in the results of these shipments, which will in time be made public.

APPLE PACKING.

THIS work also we are doing in the orchard this season, for the labor of drawing the fruit to the packing house, which we have been following other years, is an item worth saving. We take our packing table into the orchard and move the outfit from place to place upon a light



FIG. 2658. PACKING FRUIT FOR EXPORT.

drag. The pickers empty upon the packing table, and one packer with one or two assistants can pack as fast as six men can pick. The fancy fruit is all packed in the box suggested for trial by the committee of our association at Walkerton last December, viz., 9 x 12 x 18; the rest goes into barrels, and is graded No. 1 and No. 2. These barrels and boxes are at once nailed up and marked, and, as soon as the car is ready are at once packed on board. This plan reduces the handling to a minimum, and is almost the only way to handle a large orchard in seasons like the present, when labor is so expensive and difficult to get at any price.

GROWERS SHOULD SHIP IN COMPANY.

MR. W. A. MCKINNON, chief of the fruit division, Ottawa, at a recent meeting of growers at Grimsby, emphasized the great importance of working up an export trade in tender fruits. When all the Ontario orchards come into bearing the home markets cannot possibly take it at paying prices to the grower, and it is therefore of the utmost importance that we capture the northwest markets for this province.

Ontario growers should unite in small companies at shipping points in the fruit districts and make up car lots so as to se-

cure low rats of transportation. Packing and shipping houses, run on the co-operative plan, would also work well. Indeed, this principle would also help to solve several problems, as, say, the cold storage and the orchard spraying. He instanced, as a case in point, a spraying machine, run by a gasoline engine, at Woodstock, which keeps twenty orchards thoroughly sprayed, covering a district about ten miles in length.

CARS SHOULD BE WELL ICED.

There is doubtless much carelessness in the icing of cars, and shippers should see to it that a sufficient supply is put in the boxes at the starting point. Mr. Scriver, fruit inspector from Montreal, who was present at the same meeting, said that was of the greatest importance, for a poorly iced car was harder on the fruit than no ice at all. He had examined a great many refrigerator cars at Montreal, and in many cases found no ice remaining in the boxes on arrival. He believed that 90 per cent. of the failures in the export of tender fruits was due to the badly iced cars. Mr. Scriver also drew attention to the common fault of over pressing apples in barrels. The fruit thus bruised was sure to rot, and one or two rotten apples in a barrel would make it slack.

THE HERBERT RASPBERRY.

MR. R. B. WHYTE, the originator, says of the Herbert:

"The Herbert is the best of 30 seedling raspberries fruited during the last twelve years, and after careful comparison with all the leading varieties, I can confidently say that it is very much superior to any of them. In hardiness, it easily takes first place, standing a lower temperature than any other kind. The cane is very strong and vigorous, slightly prickly, leaves large

and healthy, and has never been affected by anthracnose, or disease of any kind. Fruit bright red, somewhat oblong, the largest of all red raspberries, larger than Cuthbert or London. Flavor, very sweet and juicy, the very best for table use. Enormously productive, will bear twice the crop of either Cuthbert or London. under the same conditions. Season five or six days before Cuthbert. Holds its size well to end of season."

A VISIT TO GREY COUNTY

IT was a long ride from Hamilton via Harrisburg away up to Walkerton, the county town of Grey County, but there was a model fair in that place on the 23rd and 24th of September, and it seemed an opportune time to visit that section and take notes of progress. At Guelph we were joined by Dr. Mills and Prof. Hutt,

young men to prepare themselves to become intelligent, educated and successful farmers.

THE FAIR AT WALKERTON.

The directors and officers were most active in their efforts to make this fair a grand success. The children from all the neighboring schools marched to the grounds to the music of the bands, and in spite of the usual rain accompanying a fair, there was a large attendance of visitors. One great lack at Walkerton, and at nearly every county town, is suitable and attractive fair buildings and their surroundings. The grounds are barren and uninviting, and the buildings most cheerless and often too large. No paint is ever put on them, inside or outside, and so ugly are they that no fair manager, backed up by however active and industrious a directorate, and however much aided by a patronising government, can ever work out a model fair to his own satisfaction or to that of the public. The buildings should be painted inside and out to begin with, and then the grounds about them should be planted with groups of shade trees and shrubbery as to be inviting as a park. Such a place would invite both people and exhibits and make the work of the officers much more easy because of the greater public enthusiasm.



FIG. 2659. MR. A. E. SHERRINGTON.

and although the train was late, and we did not reach Walkerton until after 9 o'clock, and the public meeting in the town hall had already been going an hour, yet all three were called upon for addresses. Following a fine address on "The Home," by Miss Maddock, Dr. Mills gave a most vigorous and rousing address calculated to arouse the

THE FRUIT EXHIBIT.

The prize list for fruit was a limited one, including only about a dozen and a half varieties of apples, five varieties of plums, one of grapes, and no named varieties of pears, peaches or quinces. Perhaps the number of varieties of apples was large enough if it really included the most delicate ones for the district. They were Spy, Baldwin, King, Golden Russet, Greening, Alexander,

Twenty Ounce Pippin, Mann, Canada Red, Colvert, Rox. Russet, Snow, Maiden's Blush, St. Lawrence, Ontario, Swazie, Ribston and Tallman.

APPLES TO PLANT IN GREY COUNTY.

Now, in planting apples in Simcoe, Huron, Grey or Bruce, we would be inclined to omit several of these, as for example the Golden Russet, because not sufficiently productive. At our Huron station this apple has proved regularly unproductive, even in alternate years. This year only one side of the trees, and in some cases only certain limbs are fruiting; besides, the small size of the fruit counts against it for a first-class export apple. Then the Twenty-Ounce Pippin, or Caba-shea, is most unproductive everywhere. It is a good seller, but it is too poor in quality for home use, and yields too little fruit to make it profitable for market. Snow, too, is unprofitable in the county of Grey, be-

cause of the scab; while the Maiden's Blush is only worth growing for ornament. In place of these we would suggest Gravenstein, Wealthy, Blenheim and Crimson Pippin.

THE BLENHEIM ORANGE.

"I think," said Mr. Whitehead, "that the Blenheim is one of my most profitable varieties. I have three trees in my orchard twelve years planted, and this year I estimate the crop as at least twenty barrels."

"I have a different story to tell," said Mr. Elford, of Huron County. "I have five or six trees twenty years planted, and I have never yet had two barrels off a tree in any one season."

"Well," said the writer, "I have great faith in the Blenheim; it is one of the best export apples and much wanted in Great Britain; has a good reputation, which is worth considerable even to an apple. It is



FIG. 2660. MEETING OF FARMERS AND FRUIT GROWERS AT SHERRINGTON'S.

clean from blemishes, so that every apple on a tree goes into the barrel. I intend top-grafting a number of trees in my orchard to the Blenheim."

APPLES ABOUT WALKERTON.

The general report was that a fair quantity of apples would be harvested, but that the quality was below the average. The Greenings were much spotted, and indeed most varieties would cull out badly. Buyers were offering \$1.00 a barrel for the apples picked ready for packing.

There are not many large apple orchards in the vicinity, most of the apples being grown by farmers in small orchard plots. Perhaps the largest was that of Mr. Shaw, of seventeen acres. "I have," said Mr. Sherrington, "been buying apples hereabout for nine years past and know the orchards well. One year I paid out \$44,000 for 22,000 barrels, which gives you a fair idea of our apple crop in this section."

CO-OPERATIVE ORCHARDING.

"We have formed at Walkerton what we call the Lake Huron Fruit Growers' Association," said Mr. Sherrington, "and I have great confidence in its success. We meet monthly for the discussion of methods, and for business plans. In a business way our scheme is to work together in buying packages and in shipping, leaving the details to a manager, to sell at the shipping point at a definite price f. o. b. Last year we put up 1,000 boxes of Duchess apples for export. Now we are receiving orders from the Northwest, and no doubt that will be our best market." Here Mr. Sherrington pulled from his pocket some letters, in which he showed orders from Portage la Prairie and other points for three carloads of the Lake Huron brand of winter apples.

"We have," continued he, "about forty members of our association, and are having applications for membership every day.

Each member packs his own apples according to the standard of the association; his own name goes on the packages; and, if they stand inspection they are shipped out under the association brand, otherwise they are rejected entirely."

OUR FRUIT EXPERIMENTER AT WALKERTON.

In Mr. A. E. Sherrington we have secured a painstaking careful experimenter, whose work is much appreciated in the Lake Huron district. This man has had a singular history, and his indomitable energy and wonderful perseverance have combined to enable him to overcome tremendous difficulties and attain success in his vocation. Born in a log house in Peel township in the County of Wellington, of the second white family that settled in that part, he says that in his early years he often saw no white face for six months at a time. It was a life of toil, with little opportunity for school; just a little in the winter months and then at work as soon as the snow went off. At the age of fourteen his father's death left the boy in full charge of the farm, and he did not shirk his duty or his responsibility, but himself did all the work and shouldered the whole management until he was twenty-six, when he left home and struck out for himself. First he hired with a good farmer near Berlin, then with another near Woodstock, when he rented a farm for himself near the latter place and remained on it three years. In 1883 he bought one hundred acres near Walkerton, but having an ambition for fruit farming he disposed of the farm, and about twelve years ago he bought seven acres near the town of Walkerton, on which he now resides. Recently, since he has taken up our experimental work he has added three acres to his plot, making about ten acres in all, which he keeps under excellent cultivation. His apple orchard is well pruned, cultivated, and thoroughly sprayed, and his experimental plots of rasp-

berries and commercial plums is full of interest to visiting fruit growers. As side industries Mr. Sherrington has a apiary of about fifty hives, and a poultry yard with about 100 thoroughbred Plymouth Rock hens, of which all the eggs are sold for setting. With such care and such industry, ten acres is enough to yield a good income, better than many men take from ten times that acreage.

Such men are valuable in every community. They have gained in life's school an education that cannot be got from books,

and their fellow men, seeing how they manage their own affairs, have confidence in them with regard to public matters. So in the case of Mr. Sherrington, his fellows have elected him to their township council, made him superintendent of the fair, organizer of farmers' institutes and fruit growers' associations, judge at fairs, and many other positions of usefulness. We count ourselves fortunate in securing his services in testing fruits for the general good.

THE KING APPLE.

THE King is one of the favorite varieties of apples in the market, but unfortunately is so shy a bearer in its own roots, that is is not at all profitable. It has, however, frequently been noted that by topgrafting it on any vigorous stock it becomes much more prolific.

The Fruit Division, Ottawa, invited correspondence upon this subject, and has received some valuable information. Mr. C. L. Stephens, of Orillia, has the "King" topgrafted on "Duchess," and finds that its bearing qualities are quite satisfactory. Mr. Wm. Read, of Jarrat's Corners, has twelve King trees grafted on Duchess, and reports equally good results. Mr. Judson Harris, of Ingersoll, has an orchard of two and one half acres, the crop from which for the past eight years has never brought him less than \$500. Many of these trees are Kings

grafted on Russets. Mr. Robert Murray, of Avening, has a number of King trees on their own roots and others grafted on Tolman Sweets, and notes that the top grafted trees are the only ones that give him paying crops.

The experience of these growers and many others goes to show that it would be a very profitable piece of business to topgraft at least some of the early apples to be found all over Ontario with Kings. It is an apple that exactly fills the bill as a fancy market variety, as it is of excellent quality, color and size, and well known in the English market. If its only defect, want of productiveness, can be cured by the simple method of topgrafting, it should prove a boon to many people who have vigorous trees of undesirable varieties.—*Kincardine Reporter*.

ENGLISH HORTICULTURAL NOTES

BY THE EDITOR.

IT was no small privilege to visit Hampton Court and see that immense Black Hamburg grape vine which is famous the world over, and to have the old gardener, Mr. Jack, point out its characteristics. The old man has been nineteen years in the service, and now is pensioned, with the vine as his special care.

"How large is the vine in circumference?" we enquired. "At one foot from the ground it measures four feet."

"I have heard that you sometimes take one ton of grapes from it in a single season. Is that true?" "Possibly it has yielded that much in a single season, but I

do not permit it as a rule. It often sets about 3,000 bunches, but I remove about half of them to economise the vigor of the vine."

The great Wisteria at Hampton Court was quite as remarkable as the grape vine. It was brought from China about 1818, so that it is now over 80 years old, and probably the first one ever introduced into England. It now covers a wall thirty feet long and at least twelve feet high, and measures six feet in circumference around the base. It was in full bloom when we saw it, and made a magnificent display.

The avenue of Wych elms, probably planted by Cardinal Wolsey, who built Hampton Court in 1568, is another horticultural curiosity. These trees are annually pruned in such a way that they never increase in height, having once arched the pathway.

It is not quite clear, says the Gardening World, why the avenue of wych elms, with their interlacing branches, should have become known as Queen Mary's Bower. That it was formed prior to the building of the new state rooms there can be no doubt, for Evelyn, in an entry dated June 9, 1662, says: "The cradel wolk of hornbeame in the garden is, for the perplexed twining of the trees, very observable." Evelyn was mistaken as to the kind of tree with which the avenue or bower was formed. The branches are no longer allowed to interlace, but are annually pruned in the manner shown in the accompanying illustration. The growths, however, meet during the summer, and form a delightfully cool retreat. The walk is one hundred yards long and twelve feet wide, and the trees are twenty feet high.



FIG. 2661. AVENUE OF WYCH ELMS AT HAMPTON COURT.

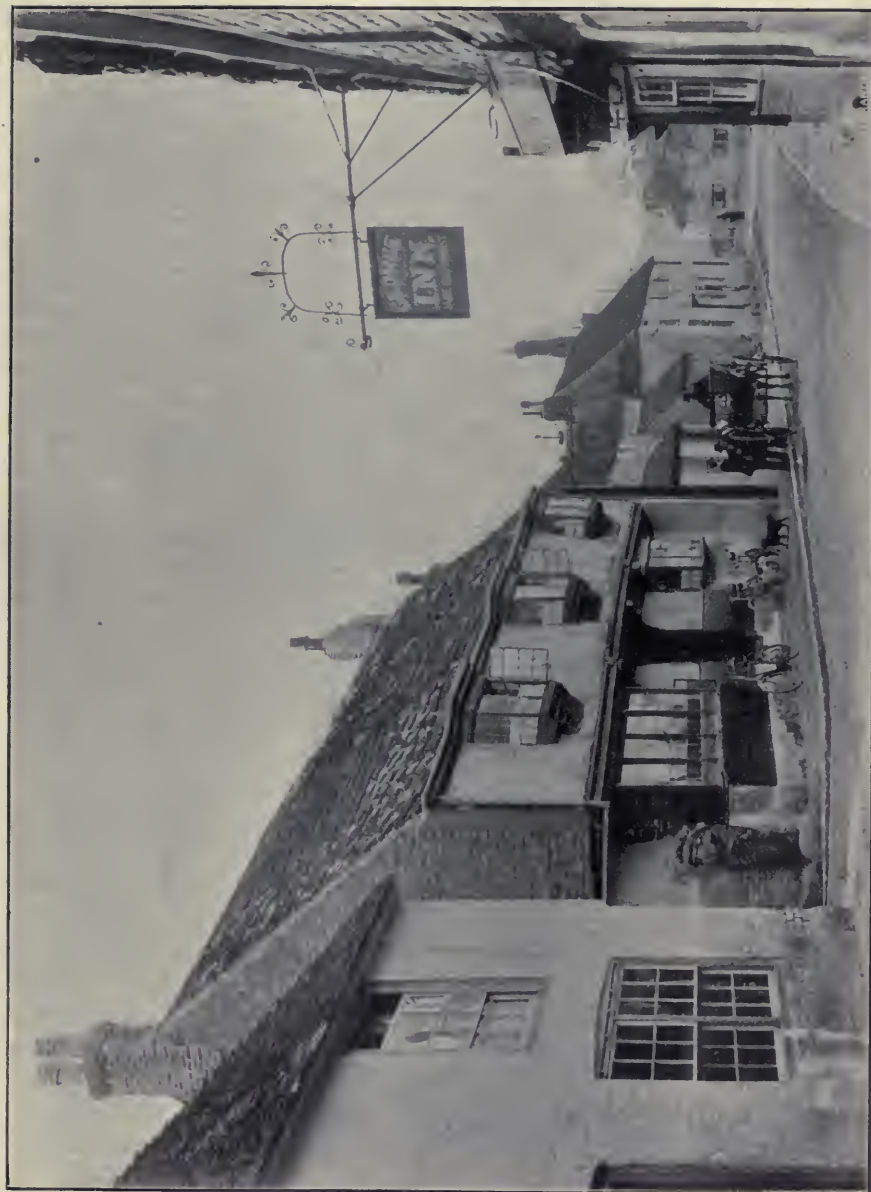


FIG. 2662. IN RURAL ENGLAND: THE VILLAGE INNS.
A view in the Village of Alfriston, showing at the right the "George Inn" and opposite the "Old Star Inn," a hostelry of local repute.

The great flower show of the Royal Horticultural Society in the Temple Gardens was visited by us on the 25th of May, and truly the display of roses, azaleas, rhododendrons, orchids, gloxinias, tuberous begonias, caladiums, cannas, sarracenias, etc., excelled anything we had ever before seen.

We took notes of a great many wonderful collections, but it would be unfair to mention them here without giving a complete list, and that belongs rather to a florist's trade journal than to our pages. Some idea of the comprehensive nature of the exhibits may however be imagined when we note that John Waterer alone showed 42 varieties of rhododendrons, a display that can be better imagined than described. He pointed out to us one which he esteemed his finest, namely, the Pink Pearl, which was truly superb.

An interesting display of potted fruit trees in bearing was made by those celebrated horticulturists, Thos. Rivers & Sons, of Sawbridgeworth, Herts. Mr. Camp, who was in charge, said the firm had now four hundred acres in fruit and fruit trees. We noticed among his novelties shown, the Peregrine peach, similar in appearance to the Alexander, but a free stone; the Early Rivers cherry, a sweet black variety of about the season of Tartarian, but a surer cropper and larger; the Frogmore, a Bigarreau, earlier than Napoleon, better in flavor, and more tender, counted his best white; and two special varieties of plums, the Early Rivers, his earliest, and the Monarch, his latest, and these he counted the most profitable for the orchard.

The following note on the show, from the Gardeners' Chronicle, will appropriately close this hasty sketch of what is known in London as the Temple Flower Show:

Delightful weather, a magnificent display of flowers, and a very large attendance of visitors, marked the first day of the sixteenth annual show of the Horticultural So-

ciety opened yesterday in the Temple Gardens. While, on the one hand, the Benchers had liberally given up the whole of their historic lawns for the occasion, the society, on the other, had rearranged their tents, and economised space in other ways, with the result that, though the gardens were thronged from morning to evening, the crush experienced in previous years was distinctly lessened, if not altogether done away with. Tents 1, 2 and 3, for instance, instead of existing separately, had been made into one arcade, with an obvious economy of room and improvement in ventilation, though the alteration, not being accompanied by a like rearrangement of numbers, was somewhat of a snare to those who did not use their catalogue with close attention.

Entering the first canvas hall from the embankment, the visitor came upon a gorgeous bank of tulips, tropical in their splendor, and making the early English roses on the left of the way look pallid by comparison. After the tulips were marshalled Cape primroses, a comparatively new flower, which growers hope may presently take its place as a summer bedding plant, and following these again Scotch pansies, and begonias in fervid scarlets and yellows, outshining everything in their neighborhood. On the other side of the tent the earliest arrivals, who alone enjoyed much liberty of movement, found some relief from all this floral brilliancy in practical, if unexpected displays of such useful things as peas and carrots, melons and cucumbers, all of which, for some reason, were in show between Messrs. Cannell's flaming cannas, cacti flowering as grandly as though they were in their native Mexican forests, and a hundred other beautiful things from the rich stores of the modern horticulturist. A noticeable exhibit in tent 4 was that of the heaths shown by Messrs. Balchin, of Hastings, an unassuming stall, but commanding its group of admirers all day. At one end

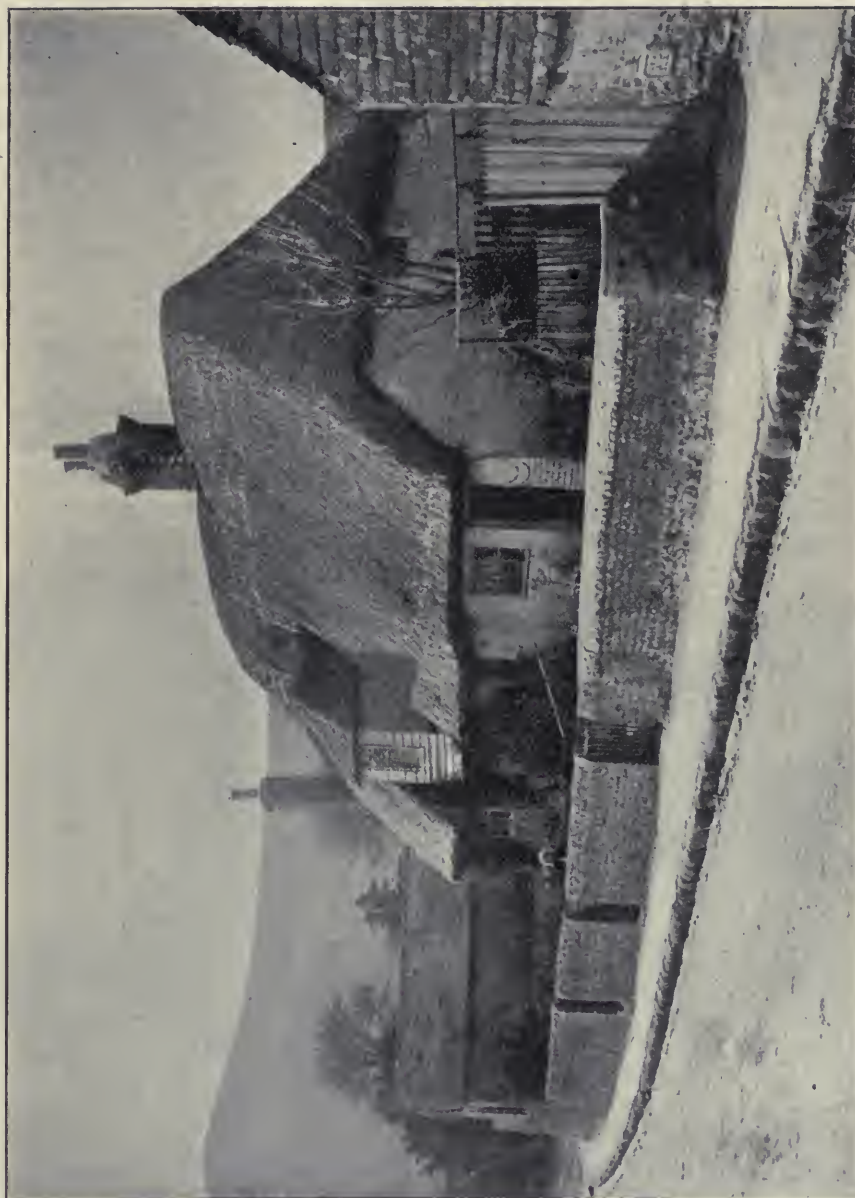


FIG. 2663. AN ENGLISH COTTAGE.

of tent 5 Mr. C. Turner had an immense assortment of growing roses, fragrant and delightful, if the individual blooms were not quite what will be looked for a little later in the season. The other extremity of the enclosure was occupied by an equally impressive display from Messrs. Paul's nurseries, before which an almost impassable throng of admirers of the queen of flowers paid homage until the exhibition closed for the day. All the central stalls here occupied by orchids, while flanking them were azaleas in a hundred delicate shades between coral-red and primrose, fine foliage plants, and banks of clematis, a flower which, either as a creeper or bedding subject, appears to improve every season.

Outside, under the plane trees, Messrs. Sutton possessed a pavilion all to themselves, the things shown, especially calceolarias and gloxinias, being very fine, in

spite of a trying season and absence of sunshine. On their vegetable benches Messrs. Sutton had several plants of each kind in actual growth, the tomatoes and cucumbers being trained in an original manner along the ceiling of the pavilion, while the fruit hung down and gave a most natural touch to the exhibit. Potatoes were shown in ornamental boxes, one side of which had been removed and glass substituted, thus enabling the tubers to be seen growing in the earth at the root of the plant. Messrs. Barr's pigmy trees in pots, from ten to a hundred and fifty years old, were very wonderful, and apparently very healthy; while several miniature representations of the popular rock-garden, with its special plants, claimed much interested attention. The show remains open until to-morrow evening, and is undoubtedly one of the best the society has held in the Temple.



FIG. 2664. AN ENGLISH HOME.

THE MANITOBA FRUIT MARKET.

ON Saturday evening, August 29th, a fruit growers' meeting was called at Grimsby to meet Mr. Philp, fruit inspector at Winnipeg. A letter was read by Mr. W. A. McKinnon, addressed to the Dominion Minister of Agriculture by the Winnipeg Fruit Exchange, in which the fruit dealers denied the accusation that any preference was given to California shipments, and asked that Mr. Philp be sent to Ontario to explain to the packers just what they needed in order to make the trade a success.

METHODS OF PACKING.

Mr. Philp gave a very interesting and instructive talk, and to begin with, compared California and Ontario methods as to packing a car. No baskets are used for these distant shipments in California but all fruit is put in boxes and held firmly in place by strips. The fruit thus put up and packed arrived in Winnipeg in perfect condition, and naturally brought higher prices than Ontario fruit in baskets. These latter are, in Mr. Philp's opinion, entirely unsuited to use for long shipments, because so frail. Sometimes a refrigerator car comes to Winnipeg from Ontario with fruit fourteen tiers high, altogether too great a weight for the bottom baskets, which often give way, and the fruit is, of course, ruined. Is it any wonder that Winnipeg fruit merchants prefer California or British Columbia fruit, when it arrives in so much better condition?

Then, too, all California fruit comes wrapped with paper. "I never saw," said Mr. Philp, "a box of pears or peaches from California without the fruit being wrapped in paper. This prevents skin blemishes from chafing, and seems to help the appearance."

EARLY APPLES.

Early apples, too, would do well in the west in Mr. Philp's opinion. He quite approved of the writer's plan of packing in the orchard as fast as gathered, so that the fruit could go direct from the tree to storage. The common practice in Ontario of leaving apples in heaps in the orchard for days, and perhaps weeks, is a great mistake and should be avoided. If boxes are used it might be well to adopt the British Columbia size, which is 10 x 11 x 20 inches, a little larger than the box in use this year in Ontario.

ONTARIO SHOULD COMPETE.

Winnipeg fruit dealers, said Mr. Philp, are anxious for Ontario fruit. They have no preference for California fruit except because of the better condition in which it arrives. You fruit growers in Ontario must take a little more trouble with your packing. Wrap your pears in paper, put them in boxes, and then pack your car in such a way that there will be no moving of the boxes when the car is shunted. The order price for good pears in the Northwest is about \$1.00 a box, and for pears it averages about the same. These latter come in from California in square crates, containing four square baskets, holding about five pounds of plums or grapes each, or about 20 lbs. to the crate. A square of paper is laid between each layer of plums, and in this way the fruit reaches Winnipeg in good order and brings about \$1 a crate.

Two years ago, said Mr. Philp, I was in Edmonton, a city of the Northwest, second only to Winnipeg in importance. I was surprised to find that there were no Ontario apples offered for sale—not a barrel could be traced to this province during the whole season of 1901; all the apples on sale in Edmonton were in boxes from British Columbia.

AMERICAN POMOLOGISTS

THE Boston meeting of the American Pomological Society, held September 10-12, was a success in every way except that of attendance. The excellent program of this ancient, honorable and eminently progressive association deserved larger audiences, had there been only the city of Boston to draw from. As it was, many States and Provinces were represented. Among the Canadians were C. R. H. and Arthur Starr, and Prof. Sears, of Nova Scotia; Mr. Craig and Mr. Jack, of Quebec.

A most interesting feature was the series of five-minute speeches at the evening meetings, particularly that of Friday, when "Ideals" were discussed. Many speakers took part, and the ideal raspberry was dealt with by Mr. M. A. Macoun, of Ottawa, the dessert apple by Prof. VanDeman; the amateur pomologist by Mr. W. A. Taylor. The ideal fruit growers' home, his children, their education and their environment, were other subjects ably handled by speakers who had given time and thought to their work of "boiling down" ideals.

The four-year-old committee on naming fruits presented a carefully worded report, laying down important principles to govern official nomenclature. Names are to be as brief as possible, possessives are to be discarded, along with such general terms as "pippin," "pearmain" and "rareripe." Rights of originators of new fruits, and of the districts or sections of origin, are to be respected so far as the general interest will admit; but having once formally published the name of a variety, its originator has no further authority over it, and no more right to change the name than any other person. A variety should not be named while it is

still in the experimental stage, but only after it has been successfully propagated.

Numbers should be used only during the preliminary or test stage, to be exchanged for a distinctive name when the variety is established on the market.

Some discussion arose over the question whether an owner should have the absolute right to give a new variety its name, or whether, if quite unsuitable, such name should be refused recognition.

At Professor Waugh's suggestion the committee was continued and empowered to make minor changes in its report as presented.

The report of the "ad interim" committee on the Wilder awards was equally interesting, and affirmed the principle that no award should be given to a new fruit, no matter how excellent, which had not been propagated and successfully grown elsewhere than in its native place. In this connection it may be mentioned that a medal was awarded an exhibit of apples brought by Prof. Craig's brother from the homestead at Abbotsford.

Prof. Bailey, of Cornell, delivered a stirring address on the importance of the common school, on which, he said, the future of the country is based, and on the broadening, elevating influence of "mature studies" on the mind and life of the child.

Prof. Powell spoke on the relation of refrigeration to the fruit industry in securing an even and widespread distribution and avoiding the extremes of over-supply and scarcity.

Prof. Waugh dealt with the judging of fruits by scales of points, and Mr. W. F. Taylor claimed the support of all delegates in securing the best display of fruit ever

collected for the St. Louis exposition next year.

"Fruit Inspection and the Export Trade," was the subject of a paper read by W. A. MacKinnon, chief of the Fruit Division, Ottawa. This led to considerable discussion, to the appointment of a committee, and finally to a resolution recommending that the federal government be asked to

pass legislation similar to the Canadian Fruit Marks Act. This is a high, but well-deserved tribute to the success of the measure as operated by our Department of Agriculture.

Election of officers: President, J. H. Hale, So. Glastonbury, Mass.; Secretary, Prof. Craig, Cornell.

A HOPEFUL OUTLOOK FOR THE APPLE MARKET.

CANADA has unquestionably a large crop of apples, notwithstanding the fact that in some sections there is a falling off in the supply as compared with that of last year. For instance, in the St. Hilaire district it is estimated that the yield is not over 15,000 barrels, against 40,000 barrels last year. On the Island of Montreal, however, the crop of Fameuse is very large, and remarkably fine in quality, finer, in fact, than for the past ten years. In Ontario there is a big crop of winter fruit; but west of Toronto there will be quite a lot of seconds. East of Toronto the quality is generally fine, and the yield good. Not only have English buyers been surveying the situation, but French buyers are also here, for their share of the crop; so that the prospects at present are that Canadian apples will not go begging a market this year, providing, of course, that too high prices are not demanded by growers. A considerable portion of the fruit has been contracted in the west at \$1.00 to \$1.25 on the tree, and in some instances \$1.50 has been paid for fancy red fruit. Receipts are light, except for those local grown, which are plentiful. Owing to the glowing reports recently received from British markets there are strong inducements for shippers to push forward their fall goods, the early shipments having netted them from \$1.50 to \$3.00 per barrel as to quality, ac-

cording to the statement of the principal of a well known English house. In this market choice St. Lawrence, Alexander, and fancy red fruit has sold at \$2.25 to \$2.50 per barrel, and ordinary fruit, such as Duchess, and green summer varieties, \$1.50 to \$2.00, and culled stock \$1.00 to \$1.25. Winter apples are going forward pretty freely from New York State, especially from the Hudson River districts, consisting of Greenings, Baldwins, Kings, and other winter varieties, which is considered pretty early, and before the fruit has fully matured. Remembering the disastrous results of former seasons through exporters paying high prices, on the strength of a short crop in Europe, these operators are exercising a good deal of caution in their forward purchases of winter fruit, and several of our largest buyers are refusing to pay over \$1.25 for the fruit. Barrels are scarce this year owing to the big demand, and prices have advanced to 35 cents, and as high as 38 cents has been paid in some instances. For week ending August 29, the shipments of apples from Atlantic ports were 29,907 barrels, against 20,686 barrels for the same week last year. The total shipments for the season to the above date were 57,389 barrels, as compared with 36,952 barrels for the same period last year. —*Montreal Trade Bulletin.*

HANDLING THE APPLE CROP

SOME timely and valuable advice on the selling, picking and grading of apples is given by Mr. W. A. MacKinnon, chief of the Fruit Division, Ottawa. Every one interested in the growing and marketing of apples should write for a copy of Mr. MacKinnon's bulletin on the "Export Apple Trade."

SELLING THE CROP.—When the grower is not also an exporter he may sell the apples in one of two ways, either at so much per barrel or at a lump sum for the entire orchard. As buyers often make their contracts long before picking time, either method involves consideration of the probable market price during fall and winter, which will be regulated by the total supply and demand, influenced too by changes in the quality of the crop. When to this uncertainty we add the difficulty of estimating months in advance the total yield of an orchard, subject to all changes of weather, to drought, hail and wind storms, the unbusiness-like character of bargaining "by the lump" is apparent. Whichever party gains an undue advantage, the trade suffers from this as from any other kind of gambling. The system was strongly condemned by the National Apple Shippers' Association, and our Canadian buyers describe it as an unmixed evil. Surely no more need be said to induce both buyers and sellers to abandon such guesswork, and to buy and sell by fixed standards of measure.

PICKING.—All apples should be carefully picked by hand, with the stems on, and without breaking the skin or bruising the fruit in any way.

As a general rule it is advisable for growers to harvest and pack their own fruit, whether they eventually sell it on the premises or ship to foreign markets. In either

case it is a great advantage to the seller to know exactly the quality and variety of the fruit in every package. It is a still greater advantage to have each variety picked at just the proper time. No wholesale buyer is able to have his men arrive at each orchard just when the apples in it are ready. The result is that every season a great many orchards throughout Canada are picked either too late or too early. Fruit picked too early may keep, but is apt to become tough and tasteless; if picked too late it will not keep, as the process of decay has already begun.

TIME TO PICK.—Tender varieties should not be allowed to ripen on the trees, or they will not carry well. Certain others, sometimes styled "winter varieties," such as the Baldwin and Spy, will gain in color and flavor if left on the trees as long as the frost will allow, besides being less liable to spot and mould during storage. It will pay the farmer well to pick his own fruit and see that this first step in marketing entails no needless waste.

Moreover, all varieties of apples are not ready for picking at the same time, even if destined for the same market; and some early varieties should have more than one picking to get all the fruit at the proper stage of maturity. Only the grower is in a position to watch his orchard and harvest the crop to the best advantage, and it is the grower who loses when he entrusts this task to another, for buyers are certain to allow for shrinkage from this cause. Another loss to the grower arises from carelessness of hired help, who often injure trees by breaking limbs and fruit spurs.

REMOVAL OF "DROPS."—Before any fruit is taken from the trees, every apple, good, bad, or indifferent, should be cleared off the

ground and carried away, to be used for feeding stock, or for any other purpose for which they may be fit, but not for export. Similarly, apples which drop during the picking process should be kept by themselves. We must give the fruit a fair chance from the start; wormy, rotten, or otherwise diseased apples spread contagion, and bruised or defective fruit will not pay for labor, heavy freight charges and commission.

LADDERS AND BASKETS.—Step-ladders may be used for getting at the lower limbs, and long point-top ladders for the upper branches; the baskets should be small enough to turn easily inside a barrel, and so shaped as to allow the apples to be turned out with a gentle, sliding motion. In picking, care should be taken to avoid breaking off the fruit spurs, which the promise of next year's crop.

GRADING.—Grading always pays, whether the crop be light or heavy. When the wormy, bruised, mis-shapen and spotted apples have been removed, the following qualities should be apparent in the higher grades. (1) Uniformity in size. (2) Uniformity in color. (3) Freedom from defects.

Two grades will usually be found sufficient for export, and both of these should be perfectly free from insect or other injuries, the second being inferior to the first only in point of size and color. All the apples in one grade cannot be uniform in size, but the apples in a single package should be so, for the fruit will be viewed and sold by the package.

It may well happen that a third grade, exclusive of culls, will be found to consist of fair marketable fruit, which the grower feels disposed to export; but this grade, lacking any special features of excellence and showing a greater percentage of waste, often eats into the profit earned by the finer fruit, besides reducing the general reputation of the shipper's brand. Much better average results are likely to be obtained in local markets or from evaporators.

The merits of mechanical graders on the market from time to time should be carefully investigated by all whose shipments are large. A really good and rapid grader will effect a great saving in time and money, and produce a wonderful difference in the appearance of the fruit when each size is placed in packages by itself.

The expert women who grade French fruit for market perform the operation without mechanical aid. A few days' practice with measuring rings is sufficient to train the eye so that the fruit is accurately graded within a quarter of an inch. Many who are attempting to grade by hand will find that the use of a piece of shingle or other light wood, in which holes are cut measuring two and a quarter, two and three-quarters, three and three and a half inches respectively, will be of great assistance in this work. By testing an apple now and again the packer will soon become expert in determining the size without the use of the testing board.—*Department of Agriculture, Ottawa.*

THE FAILURE OF THE FRUIT CROP IN ENGLAND.

THE Gardening World publishes the following report of the English fruit crop, which is of especial interest to us in consideration of the abundant crops in Ontario:

Whatever room for uncertainty there may be in the case of field crops generally, there is no doubt now as to the fate of the fruit harvest. To take one or two Midland reports, market gardeners in the Cookhill

district—a centre which supplies a large portion of Redditch and district with garden produce—have a very poor outlook for the approaching autumn and winter. Pears and plums cannot be obtained at any price, and only in a very few instances, where the fruit gardens and orchards happen to be sheltered, is there anything like a medium crop of apples. Soft and stone fruit round about Evesham have turned out failures; so have apples. In the Kineton district fruit “is a general failure.” In the Cotswold country the prices asked for all kinds of garden fruit are proof of the scarcity. A placard up in one Cotswold town offered 4¼d. per lb. wholesale for black currants, and in another place 9½d. retail was asked for plums, as attested by the *Midland Counties Herald*. Apples and pears suffered badly through the frosts of May.

In Worcestershire farmers are concerned in the failure of the apple crop, for there are good apple orchards on most farms. Apples are a very poor crop indeed, and there will be a shortage of cider fruit for a second year in succession. Even in famous cider districts now it is hard to obtain a good cup of cider, and the make this season must of necessity be limited. As many farmers in the Vale of Evesham say that they cannot get laborers to work for them in the hayfields without a very liberal allowance of cider, the short supply is a matter of some importance.

The general scarcity of home-grown fruit amounts, it is said, almost to a famine in the Greengage and plum-growing districts of Southwest Cambridgeshire. So complete was the destruction of the crops by the spring frosts that in some orchards there is absolutely no fruit, while in others

two or three on a tree is all that can be seen.

Only two years ago, of Greengages alone the consignments from the villages of Mel-dreth and Melbourn amounted on two days to 30 tons each, and one week's return was 140 tons of Gages. For the occupiers of small homesteads, with orchards attached, of whom there are a number in the villages, it is a serious loss. In a fruitful year an orchard will pay nearly the whole year's rent of a homestead. But this year it will mean £100 rental for a house worth in itself £20, and no produce from the orchard. As a rule, orchard land which is fairly planted will make about £10 an acre rent, which is a very good thing for the landlords, and also for the tenant in a good or even average year.

In the circumstances it is more than likely that the year will see a more than usual quantity of blackberries marketed. Unlike the cultivated fruit, these wild berries promise very well. There is a growing demand for them even in ordinary years, and as it is they must inevitably be called upon to supplement the poor garden and orchard crops. The bushes bear profusely for two months. This ensures successional supplies for marketing, and gives the blackberry an advantage over the strawberry and currant, whose fruit comes on with a rush and exhausts itself in the course of a few days. Large, evenly graded berries, put up in punnets for sale, can be disposed of by the ton at values ranging from 4s. to 6s. a dozen pounds wholesale. It has been prophesied that they will be retailed this season at 9d. and a shilling a punnet, and even then they will not be unduly dear at the price.

THE HAIRY VETCH.

AFTER seeing the hairy vetch grown in a small way for two or three years, I have concluded that it is bound to become one of the most important of our leguminous crops. In this latitude it may be sown in September or October, and cut for hay in May, thus giving ample time to follow it with a corn crop. I cannot say how much hay it will yield per acre, as practically all with which I have dealt has been saved for seed; but I do know that it will grow four to five feet high on good land, and this means that it will yield enough to merit attention.

Analyses of the plant show that it is very rich in protein, and anything that will help to balance the usual excess of the carbonaceous elements in our rations is undoubtedly needed by most farmers. For hay, it should be cut when in full bloom. If sown alone it will be hard to handle, but when sown with equal parts of wheat or oats, it is readily managed.

As a cover crop it is especially valuable, furnishing pasture in both fall and spring, and adding large quantities of nitrogen to the soil. Some soils, it is said, must be inoculated with the bacteria which produce the nodules on its roots before the vetch will grow well; but in my experience this has never been necessary. It grows well on a variety of soils and under widely different

conditions. It seems to be far less particular in this respect than crimson clover. Where a few seeds were dropped in a pasture, they came up and grew readily; and the Arkansas Experiment Station recommends it for sowing on Bermuda sods, the two furnishing pasture nearly all the year.

Owing to the high price of the seed at present, most farmers will probably find it unprofitable except for seed. We sow it at the rate of one-half to one bushel per acre. It is cut when the bulk of the seed seems ripe, and threshed in an ordinary grain thresher. It will yield from 6 to 10 bushels per acre; and the latter figure may be exceeded on good lands. If the seed is wanted pure, it must be sown alone; but this means some extra labor in handling. It will reseed itself when allowed to ripen, one piece of land which was sown only once having produced two crops of vetch and one of corn, and having a good stand of vetch growing on it at present.

In all the southern half of the country, winter cover crops are a necessity if the land is to be improved, and for this purpose I know of nothing better than hairy vetch. This, together with its value for hay and pasture, is my reason for the opinion with which I began this paper.—*Country Gentleman*.

HOW TO HANG A HAMMOCK.

THE ideal way to hang a hammock is to place it six and a quarter feet from the ground at the head, and three and three quarters at the foot. The rope that secures the head should measure about one

foot (it is better to be less), and at the foot about five times that. The object of this is to keep the head comfortable, by being nearly stationary, while the lower part of the hammock will swing freely.

FALL TREATMENT OF VINEYARDS.

DURING the picking season the careful grape grower will make frequent trips over those portions of the vineyard that are supposed to be cleaned up. The dense foliage often hides a few trays of good grapes as the crop is being gathered, which would be spoiled in a few days. All the empty trays or picking boxes left in the field should be kept picked up; the picking standards used to raise the tray from the ground in picking should be promptly repaired and put under shelter for another season's use. By keeping them clean and dry adds years to their usefulness and makes a much more suitable receptacle for the fruit, to say nothing of appearance, a factor not to be treated lightly.

Tillage should be such that leaves the surface slightly higher along the row, and sloping toward the center between the rows. This will have a tendency to run off all surplus water and keep it from settling around the vines during winter. Plowing the vineyard after the crop has been harvested is not to be recommended. The season's growth is finished. No possible good, and only harm, can come from cultivation, which converts the soil into a sponge, thus holding every particle of rainfall, when it does more harm than good. Cultivation should cease by August 10 or thereabouts, allowing the soil and roots to remain undisturbed until next spring.

At the last cultivation it is advisable to sow a cover crop, to hold the soil and keep it from washing and leaching, catch and retain snow, as well as protect the soil and roots from sudden changes of temperature. If weeds are making a rank growth during the fall, cut them before the seeds have developed.

There may be advantages that would overbalance the ill effects of fall plowing, such as covering up the rotted grapes; thereby getting rid of part of the fungous

spores contained in them, which would develop more rapidly on the surface and increase the amount of rot another year. During the picking and packing season care should be exercised as to the disposal of the rotten grapes. Destroy every sign of a diseased fruit.

Some vineyardists have a habit of leaving the vines until spring before trimming. We always prune as soon after the leaves fall as possible. However, it's better to wait until after a few heavy freezes. This will dry up the sap and make it easy to distinguish immature growth. We use mostly the Kniffin system, or what I consider a modification of that method. Whatever system is followed, it's always safe to advise observing the growth of the previous season in order to determine if any change is to be made. After the vines are trimmed see that they are loosened from the wires. The material used in tying may cut into the wood another year if it is left, also damage may be done by heavy snow dragging the canes down over the wires. Pull the surplus wood into the middle between the rows. In doing this, it's best to pull against the posts. If possible, draw out and burn the brush in the fall, saving this time for other spring work.

A pole about two inches in diameter and 12 or 14 feet long is used to draw out the brush. Attach a strong wire, say 5 feet from the large end, letting it extend a little farther than the end, to hitch the horse to. I like to review the experiences of the season after the crop has been harvested, and fix in my mind anything I have learned; or better yet, take notes during the entire year. In this way any change I wish to make, any new plans I may wish to introduce, is not forgotten. Otherwise, it might be thought of only when I see my mistake, and too late to put it into execution.—*American Agriculturist.*

THE DELICIOUS GRAPE

RECIPES FOR MAKING JAMS AND JELLIES.

NO fruit comes at a better season for preserving than the grape. It does not ripen until most of the other summer fruit is gone. To be sure, the unripe grapes must be plucked during the late summer, but these are used for one or two receipts only.

GREEN GRAPE JELLY.—For this delicious sweet the ordinary wild or fox grapes are the best. They will usually be found growing by the roadside. If plucked before they begin to color they will make an exquisite green jelly of quite a different flavor from that which is obtained by using them when partly ripe, in which state they are a light pink and produce a jelly of that color. In either case the process is the same.

Strip the grapes from the stems and place them in a large earthen jar. Stand this in a larger vessel containing water. Place over the fire, and as the grapes begin to soften stir them from time to time with a wooden spoon. Do not hasten this part of the work, but let them stand and steam until thoroughly crushed, a process which often requires several hours. When well broken, place the grapes in a flannel jelly bag and let drip without squeezing until the juice is well extracted. Measure, and for every pint allow one and a half pounds of good granulated sugar. Put the juice in a preserving kettle and put the sugar on plat-ters. Stand the sugar in an oven to heat and place the juice over a fire. Let boil for twenty minutes and skim carefully from time to time. Then turn in the hot sugar and let boil up once. Remove from the fire immediately and turn into jelly glasses while hot. Let stand uncovered until firm, then cover the glasses and store in a clean place.

RIPE GRAPE JELLY.—For this purpose

wild grapes are, perhaps, the best of all, but the Catawbias yield a jelly of particularly beautiful color and delicious flavor, and any good sort can be used. Proceed exactly as directed for wild grape jelly, using one pound of sugar to one pint of juice in place of $1\frac{1}{2}$ pounds.

GRAPE MARMALADE.—Choose ripe grapes of any familiar kind, and place them in the preserving kettle with just enough water to prevent them burning. Cook slowly at the side of the stove until they are well broken and mashed. Then press through a sieve and measure the pulp. For each pint allow half-pound of sugar. Place the grape pulp over the fire, let boil for twenty minutes, add the sugar and let boil from ten to twenty minutes longer, or until when a drop of the mixture is put on the plate it will retain its shape without spreading. Stir constantly while cooking. Skim carefully from time to time, and when done pack in small jars.

GRAPE CATSUP.—To make a delicious relish for cold meats, choose ripe Concord grapes, and to each 6 pounds allow 1 pint of vinegar, 2 pounds of sugar, 2 teaspoonfuls of cinnamon, 1 teaspoonful of cloves, 1 of mace, 1 of allspice (all ground), 1 teaspoonful of salt, and $\frac{1}{2}$ teaspoonful of cayenne pepper. Remove the grapes from their stems and wash and place them in a preserving kettle with the vinegar. Let all boil for twenty minutes, and then rub them through a sieve. Return the pulp to the kettle and boil until it becomes thick and clean. Then add the sugar and the spices. Boil for twenty minutes, add more pepper if liked, bottle and cork tightly.

GRAPE JAM.—This delicious jam can be made from either the cultivated or the wild

grape in its ripe state. Separate the pulp from the skins and place them in separate basins. Put the pulps in a preserving kettle and bring to the boiling point. Then press them through a colander, add the skins and measure. To every pint allow one-half pound of sugar. Put all together in the preserving kettle, boil rapidly for twenty minutes, stirring now and then, and pour into tumblers or jars when hot. Stand aside until cold, then seal with patent tops, or cover as directed for jelly.

UNFERMENTED GRAPE JUICE.—Choose ripe Concord grapes and remove the stems and any imperfect fruit that may be found. Then place in a wooden bowl and mash well with a potato masher. Put a small quantity at a time in a jelly bag and press out all the juice, or pass through a fruit press. Then strain the liquid through flannel. The liquid into beer or other bottles, with patent corks, until they are brimming full. Then cork tightly and stand in an upright position in a wash boiler, the bottom of which has been covered with slats. Wrap each bottle in a cloth. Pour in cold water to within an inch of the corks and stand the boiler over the fire. Let heat slowly and note the time at which the water begins to boil. Let boil for twenty minutes, remove from the fire, and allow the liquid to become

cold in the water. Store in a cool place, laying the bottles on their sides.

SPICED GRAPES.—Pour over five pounds of sugar as little vinegar as will dissolve it, adding six cloves and a stick of cinnamon. Boil to a thick syrup. Take seven pounds of grapes picked from the stems, pour the hot syrup over them and let them stand over night. Drain off the syrup, put in a preserving kettle, let come to a boil, and again pour over the fruit. Repeat this process three times, then pour into jars and let stand until cold. Seal and keep in a cool place.

JELLIED GRAPES.—A very delicate dessert is made of one-third of a cup of rice, one-half a cup of water, and two tablespoonfuls of sugar. Place the grapes in a deep dish. Sprinkle with the rice and sugar, pour on the water, cover close and simmer slowly two hours in the oven. Serve warm as a sauce or cold as a pudding. If served warm as a pudding, slightly increase the proportion of rice and sugar.

GRAPE SHERBET.—Allow one-half cup of grape jelly to the same amount of sugar and water. Strain into one quart of rich milk which has been chilled in the freezer and freeze. This makes a beautifully tinted sherbet.

CARE OF BUSH FRUITS.

HOW BLACKBERRIES, RASPBERRIES AND DEWBERRIES ARE SUCCESSFULLY GROWN.

Intelligent pruning is imperative to any success in the growing of the bush fruits. On the newer wood the fruit is borne, and the old wood should be cut away as soon as its usefulness is past. Then one must limit the number of shoots that arise from the crown in order that the plant may not be choked with too much growth. In all the bramble fruits—blackberries, dewberries—the wood bears but once. Let us suppose that the shoots spring from the crown in

the spring of 1900. It is well to pull out all but four or six of the strongest. By fall these shoots or canes have reached their full stature. In 1901 they will bear their first and only crop. After the crop is off—or before the following spring—they should be cut out entirely. In the meantime—in the spring of 1901—another crop of shoots have arisen to bear in 1902; and thus the biennial succession goes on. Currants and gooseberries will bear in the same wood two or three years, but pruning should keep the bush in constant process of renewal from the root. Add to this ample cultivation of the soil, and a full-ripe berry of any of these sorts far excels its wild prototype.—*Country Life in America.*

A FRUIT CLUB

THERE is a great advantage in associated effort. Our Canadian fruit growers would make more money out of their fruit shipments if associated more closely in business. The man who has a small orchard finds he has too little fruit for a car lot, and is obliged to sell to the traveling buyer; when a little associated effort would bring several such men together who could easily make up a car lot.

Our Secretary, Mr. G. C. Creelman, is wisely encouraging fruit growers' clubs, and no doubt much good will result. Mr. S. Spillett, of Nantye, writes that a small club has been meeting at his house, in twos and threes, to discuss fruit culture. "Dr. Little," he says, "who has 9 acres devoted to fruit of all kinds (his specialty is the Japan plum), generally runs over once or twice a week. The doctor is an enthusiast in fruit, and is an intelligent and tireless investigator."

"The doctor and I have been experimenting with the different systems of growing strawberries, with the result that we have demonstrated to, our own satisfaction and to the satisfaction of our clubs that the hill system will yield a larger crop of larger berries of better quality, with less labor in cultivation and picking, than the matted row system, or any modification of it. There are two essentials to success with the hill system that I name. The soil must be rich and the plants must be mulched in the fall as soon as the ground freezes. This will protect the plants from heaving and keep the fruit clean, though some varieties will carry their fruit up clear from the ground. Since our experiments we have got hold of R. M. Kellogg's, of Three Rivers, Mich., in which he gives his experience with the different systems extending over a period of 19 years. He names the different systems

as follows: The hill system, the hedge row, half matted row, and the matted row. Mr. K. has no hesitation in declaring that the nearer the system comes to the hill the better the results. Mr. R. claims 400 and even 500 bushels for the hill system. On rich strong land this is not more than I have grown on small areas. My experience says that a quart per plant is a large crop, or about 11,000 boxes per acre. The reasons for preferring the hill system, in which plants are set $1\frac{1}{2} \times 2\frac{1}{2}$ feet apart and all runners cut, are: (1) The hill of verdure, not soil, can be kept perfectly free from weeds and cultivated (shallow) right up to the plant. The matted row cannot unless knee drill is resorted to. (2) No setting of runners. (3) Easy mulching, but they must be mulched. (4) Easily picked, as berries are all together and not skipped. (5) Larger berries. (6) Larger yield. (7) Better quality; sun and air gets around the plant. (8) All the labor of cultivation can be done by hoe and scuffler.

"This season, by the half matted row, that is part of runners cut, we sold 1,500 boxes from less than $\frac{1}{4}$ acre, and what we lost by wet and being overlooked would have easily made 2,000 boxes, or 8,000 per acre. One row of hills set 18×39 inches, gave as much fruit as a matted row, and it must be noted we have nearly two rows of hills to one matted row, which are set 2×4 feet.

"Twenty years ago I raised strawberries as a hobby, just for out-door exercise. I grew the old James Vick and Manchester in hills, and I have seen my little daughter pick one box from a single plant, and 100 plants brought from T. C. Robinson, of Owen Sound, gave 150 boxes of berries, but it was a choice piece of land."

THE ORILLIA FRUIT EXHIBIT

BY T. H. RACE, MITCHELL.

IN consequence of some little controversy regarding the capabilities of the Orillia district for winter apple production, the managers of the fall fair this year made an extra effort in connection with their apple exhibit. In order to demonstrate to me the correctness of their faith in their district and the error of my opinion, they invited me out to judge their fruit. I frankly admit that I feel compelled to modify the opinion that I had been led to by my former visits to that picturesque district. The apple exhibit at Orillia this year was very fine, though still excelling in fall varieties. Going directly from London to Orillia, I was enabled to make comparisons between the two points. Again the superiority of the Alexander and Wolfe River at Orillia impressed itself upon me, and I must be frank enough to say also the superiority of the Spy, Baldwin and Greening. I am not surprised regarding the two last named, for they are not supposed to do well in any of our inland northern districts. And for the Spy, it may be said that the season being quite two weeks later at Orillia than at London, two more weeks would make a considerable difference on the Spy exhibit at the former place. Of the fourteen plates of Spys shown, two lots were of fine size, while all the rest were considerably below the average. But they were all very clean and fairly well colored, and their size will be much improved by the middle of October. The Ben Davis was, this year, considering their season there, quite up to the mark, and the exhibit was fairly large. Two exhibits especially attracted my attention, and are worthy of note, the St. Lawrence the the Stark. In both of these the display was the finest I had seen this year up to the time of my visit, and both of them was a pleasing surprise. In the St. Lawrence display there were thirteen plates, and in the Stark seven. Two very fine exhibits

of the Hubbardson's Nonsuch and one of the Blenheim pippin convinced me that these very desirable winter shippers could be grown about Orillia if top-grafted into Tallman or Pewaukee stock. Two plates of the North Star attracted a good deal of attention and were pretty well tested by both judges and visitors as to their quality. The latter is so little inferior to the Gravenstein, if any, that it promises to be one of the choicest fall apples of our northern apple sections. Indeed, its quality, as produced about Orillia, entitles it to be classed as an early winter variety.

On the whole the apple display at Orillia this year was very satisfactory, and what makes it pleasing to a judge to go there is the interest that the people take in the thing. The lawyers, clergymen and tradesmen of the town, as well as the farmers round about, are all there to see and hear and taste, and take an interested part in examining whatever is shown. They believe in making use of an object lesson to make it as far as possible education.

A NEW PLUM.

In connection with my visit to Orillia I want to make note of a new plum that I found on exhibition there. This plum was shown by Mr. Frank Kean, a farmer, who grew it from a Lombard pit. It is similar in size and appearance to the Quackenbos, with a smaller pit, finer quality of flesh, and a heavier and handsomer bloom. It is one of the meatiest of plums, in fact, that I have met with, and will make an excellent shipper. This opinion was endorsed by Mr. Alex. O'Neill, who also examined the plum and was much impressed with its appearance, quality and shipping qualities. We named it the "Orillia," and consider it well worthy of propagation, as the tree is said to be a good grader and regular bearer.

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

THE CANADIAN LEAGUE FOR CIVIC IMPROVEMENT— ITS ORGANIZATION AND AIMS.

PAPER READ BEFORE THE WOODSTOCK HORTICULTURAL SOCIETY BY THE HONORARY PRESIDENT, MAJOR GEORGE R. PATTULLO, WHO IS ALSO HON. FIELD SECRETARY OF THE LEAGUE.

THE Canadian League for Civic Improvement was formed in the rotunda of the Board of Trade, Toronto, in February last. Besides the mayor of Toronto, the meeting included a representative body of gentlemen, prominent in various walks of life from different parts of the Province of Ontario. All seemed impressed with the necessity of some such organization, and those who had enjoyed the advantage of seeing what may be done in the way of civic improvement by well directed local effort, were most enthusiastic in urging the formation of a league that would cover the entire Dominion.

OBJECT OF THE LEAGUE.

The object of the league is to unite and secure the co-operation of all ladies and gentlemen and all organizations that are interested in the promotion of out-door art, public beauty, or town, village or rural improvement. This is a comprehensive program and affords an opportunity for every person in a community to do something toward its accomplishment.

IN CITIES, TOWNS AND VILLAGES.

Civic improvement in cities, towns and villages may include better streets, more tree planting, well kept boulevards, more and better kept parks and play grounds, improvement of public buildings, school houses and churches by more general use of vines, ivy or climbers, more artistic grounds about all of these buildings, and a more general planting of shrubs and flowers therein. The erection of statues, the erection of fountains, public lavatories and closets, public gymnasiums and rest rooms, cemetery improvement, improvement of railway station grounds, planting of trees and flowers about factories, the improvement of vacant lots, lanes and alleys, a greater attention to public sanitation, a perfect sewerage system, improved facilities for the disposition of garbage, more artistic public advertising, simplicity in naming streets and numbering houses, fruit and flower exhibitions, cleansing public buildings and public vehicles, a higher class of pictures in our public halls and our various public institutions, improved municipal ar-

chitecture, including all public buildings and bridges, competitions and awarding of prizes to stimulate home-planting among the school children and citizens generally.

IN RURAL DISTRICTS.

Civic improvement in rural districts may also cover nearly as large a field. It includes better roads, more drainage, better fences, more general tree planting, a general improvement of home surroundings, including orchards better cared for, evergreens, shrubs, more generally planted and better taken care of, some flower beds about every homestead, well kept kitchen gardens, the shielding or covering of all unsightly buildings by trees or vines, better sanitation within the homes, universal bath rooms, lavatories and closets, the improvement of public buildings, school houses, school grounds, churches, manses and glebes, by laying out artistically, planting of trees, shrubs, flowers and vines and providing well kept lawns for each, also the establishment and care of parks in every municipality according to size, population and convenience, improving the architecture, approaches and general appearance of bridges, the encouragement of forestry, more particularly in the direction of planting copses of trees as a shade for farm stock, or to replace native trees that should not have been removed. This may be more easily carried on on the banks of creeks, streams, lakes and rivers, whose surroundings lend themselves easily to beautifying. Groves and all woods that could be easily utilized for park purposes and all evergreens that lend beauty to the landscape and other natural features, should be as far as possible preserved. Wayside springs should be preserved and made convenient for public use. Guide boards should also be provided.

AN INVITING FIELD.

The above are some, though not all of the

subjects included in the task of civic improvement. It is not possible, within the limits of a paper or address to discuss them at length. They are sufficiently numerous to invite the effort of all our citizens, young and old, rich and poor. To the latter they offer a specially inviting field of profit and pleasure. The poorer sections of several European and American cities have been literally transformed from apparent squalor and wretchedness to beauty and comfort by the efforts of civic improvement reformers. Productive vegetable gardens have replaced ash heaps and back-door debris, while well-kept boulevards and lawns, flowering shrubs, vines and flowers have taken the place of bare yards and general tumble-down surroundings.

SPRING THE SEASON TO BEGIN.

The season of spring is most suitable for beginning the work of out-door improvement, and it is only to out-door improvement that I shall further refer in this paper. Nor can I discuss more than two or three features of this branch of civic reform.

THOSE UNATTRACTIVE SCHOOL HOUSES.

All who have travelled through our country districts must have noticed how unattractive are the rural school houses and their surroundings. The walls of the buildings are bare and unrelieved by a touch of green in the form of ivy, climbing roses or other vines. There are no trees or shrubs about the ground, nor are there flower beds. The grass, if grass there be, is uncut, the fences are not always in good repair, and the out-buildings, forbidding and offensive, are vulgarly exposed to the public gaze. And yet, these are seats of learning! Here is where our children receive their first impressions of education. "Like produces like," it is said, and if so, what must be the impression made by surroundings so rude and repellant? There is also an absence

of a flag pole or flag, which every school section should have, and such flag should fly on all appropriate occasions, familiarizing the children with our national emblem and to teach them to love and honor it though it be "Only a bit o' bunting!"

THE CHURCHES ALSO NEGLECTED.

Then our rural church buildings are little less unattractive than are the school houses. They appear to be neglected and uncared for. One might easily imagine that they were seldom, if ever visited, so cold, bare and uninviting do they appear. If surrounded by a cemetery, as they usually are, it too looks uncared for and ragged in the extreme. Respect for the dead, if not for the living, should suggest an improvement in this respect, and surely our places of worship should be made as attractive in their exteriors as our own homes. The spirit of true worship is sacrifice, and professing Christians should show, not only by the substantial character of their churches and attractive interior, but also by pleasant and picturesque surroundings, that they are willing to sacrifice of both time and means to beautify the temples which they have erected for the worship of Almighty God.

RAILWAY STATIONS AND GROUNDS.

Another direction in which improvement may be made by vines, shrubs, flowers and well kept lawns, is our railway station houses and station grounds. This is becoming more important because of the building of electric lines of railway, and the same improvements should be made, and indeed insisted upon, by the public, upon the station houses and grounds of electric railways as are necessary on steam railway properties. These improvements should be made a condition of granting franchises to companies when applying to municipalities for them. Another condition that should be insisted upon is that all the land lying

alongside the electric railway tracks and belonging to the companies should be kept clear of all noxious weeds, and in general be well cared for. Otherwise these properties may become eyesores to the travelling public and a menace to the crops of adjacent farmers.

SHADE TREES ALONG HIGHWAYS.

Tree planting along the roadways would add greatly to their beauty, and if done judiciously and the trees not planted too closely, while affording a pleasant shade, would not necessarily injure the roadways by holding the water and thereby making them damp or wet.

BEAUTIFYING RURAL HOMES.

A strong effort should be made to induce our friends, the farmers, to pay more attention to beautifying the exterior of their homes and surrounding grounds. Farm houses are usually located advantageously for improvements such as are suggested. An ivy, climbing rose, or any creeping vine would relieve their bare appearance, while some pretty flowering shrubs, a few evergreens, and some flower beds would add greatly to the beauty of the surroundings. But what is still more important, they would probably interest some members of the household and make all more contented with the home and its environment.

COPSES OF SHADE TREES.

Then in the older parts of Ontario and the other eastern provinces, where the larger part of the farms have been entirely denuded of trees when the trees of the forest were felled, some attempt should be made to partially replace them by planting, in appropriate places, copses of evergreens or shade trees. These are not only valuable as shade for the farm stock, but would greatly add to the beauty of the landscape. In the absence of hedges, such as are in the

old countries, and which serve the purpose of fences there, trees scattered here and there over the farm add much to its appearance.

RURAL PARKS.

Not only so, but every rural municipality should provide itself with one or more parks, which should become common and convenient resorts. Public gatherings, picnics, private or public, could be held there. Nor would there be any difficulty securing suitable and attractive locations—no township is without them. In many cases they are there ready to hand with forest trees, water convenient, and the general topography all that the landscape gardener could wish; cost of purchase would not be great, nor would the expense of properly keeping them up.

GOOD ROADS AND CIVIC REFORM.

The above suggested improvements are all in harmony with the general improvement of the highways of the country, which in recent years has made considerable advances and has now reached the stage of governmental and municipal reform in the form of good roads improvement.

A CANADIAN PARADISE.

With good roads to drive, wheel or walk over, with the highways tree lined, the landscapes improved by replanting, the school and church properties which we pass beautified by well-kept lawns, shrubs and trees, vines and flowers, and with the national flag floating from a flag pole at every school house, how much more pleasant it would be to travel in the country and how much more proud we would have a right to be of our native land!

URBAN CIVIC REFORMS.

This paper must necessarily be too brief to permit me to enlarge upon even a tithe of what is aimed at by the league for civic im-

provement in the direction of further beautifying our cities, towns and villages. All of these should have parks, picturesquely situated, wherever possible, tastefully laid out and always well kept. There should be more boulevards, more planting of trees, better kept streets, more cleanly lanes and alleys, an improved garbage system, more official attention given to regulating architecture, building of sidewalks and landscape work. Fountains should be provided as a convenience, and all local historical events could be appropriately marked by monuments or memorial tablets.

NECESSARY AND PATRIOTIC.

By some it may be said that these reforms are comparatively unimportant, and that the Canadian people cannot be sufficiently interested to carry them out. I deny both of these statements. They are not unimportant and are urgently needed to meet the requirements of present conditions. Canadians are now beyond a primitive or primeval stage. They are for the most part able to do more than merely exist. They are now live and enjoy life in pleasant, if not luxurious surroundings. Being well able to afford to do so, it is nationally important that they should not neglect their opportunities and responsibilities. Their sons and daughters are better off, better clothed and better educated than were their fathers and mothers. They have also better homes, better school houses and better churches, but all three of the latter might easily be made more attractive by following the suggestion that I have made, and the more comfortable and attractive the surroundings of young people are made the more happy and contented will they be. Not only so, but they will grow to manhood and womanhood with a greater liking and affection for their parents, their homes and their country. They will thus be better children, better men and women and better Canadians.

OUR HORTICULTURAL SOCIETIES

MR. C. H. HALE'S PLAN FOR INAUGURATING A
MOVEMENT TO BEAUTIFY THE TOWN OF ORILLIA.

I THINK the Horticultural Society deserves every encouragement in its efforts to foster amongst our citizens a feeling of civic pride in the beauty of the town generally, and, therefore, in the proper care of their own premises in particular; and also in promoting a healthy rivalry between individuals, and better still, between sections of the town, in contributing to that beauty, this civic pride and rivalry constituting the best means towards the end which you have in view. While, however, I quite agree with you as to the wisdom of laying down some general principles for the beautifying of the streets and private grounds, which will serve as a guide to the citizens, and help in securing uniformity, I have long been of the opinion that so far as practical work in local improvement is concerned it would be better to concentrate the efforts of the society on one street or section which might serve as a model, rather than to scatter your energies over the whole town, which is so large a field that the results obtainable would not be so plain, and would not appeal so strongly to the public imagination.

These preliminary remarks, which I trust you will pardon, as necessary to defining my point of view, bring me to the plan I suggested, which, briefly stated, is that the Horticultural Society should arrange for the organized beautifying and care of one or two streets which might be made to serve as object lessons to the townspeople generally. My idea is that the residents along the streets chosen should be induced to form what might be termed Local Improvement Guilds, and to combine in keeping the streets free from litter, the sidewalks clean,

the boulevards cut and the trees trimmed. At a small cost to each resident, each guild could keep a man employed for several days a week in cutting the grass and generally keeping things in order. By all acting together uniformity would be obtained, and the appearance of the street would not be marred by its untidy condition in front of one or two places; moreover, the grass would always be the same height instead of being patchy from being cut at different times.

The streets which I would suggest for inaugurating such a movement are Neywash and Tecumseh. I choose these, (1) because they are short, and can be worked for their entire length; (2) because the residents on them are public spirited citizens who would be likely to take up such a plan; (3) because they are central; (4) because they are already very pretty, and could be made perfect with very little trouble.

There are about twenty-five houses along each of these streets. If from each of these a contribution of ten cents a week, or fifty cents a month, could be secured, a man could be kept employed on boulevards for a day and a half or two days a week. At this small outlay, by joint action, the street could be very much improved in appearance.

The Town Council might reasonably be asked to lend assistance in inaugurating the movement by putting these two streets in a good condition to begin with. In particular they might be expected to improve the appearance of the approaches to Couchiching Beach Park, and to keep them neat, instead of allowing the ground outside the gates to be a dumping ground for rubbish

and seed plot for all sorts of weeds. The council might also be induced to remove the large stones on Tecumseh street (some of which would make an excellent road material) and to grade up both streets, and put the sidewalks in good repair. But on the whole, it seems to me that it would be better that the movement for the beautifying of the town should be based in the public spirit and voluntary effort of the citizens rather than on municipal action.

To the Horticultural Society would fall the work of arranging for the organization of the guilds, and otherwise of fostering the movement. I thought, perhaps, too, that the society might provide a lawn mower and other tools, if necessary, for the first streets.

I have mentioned only two streets for the start, believing that two would be better than one, because a rivalry would be aroused between them. But my hope, of course, is that the movement would be taken up by the other streets, and if others are ready to begin at once so much the better. Brant street, for instance, another street which is particularly well suited for the work of a guild. The slope of these three streets, and their outlook over the lake, make it possible to make them exceedingly

pretty. My idea is that on each of these streets where it is proposed to carry on the work, the residents should have a meeting, organize into a permanent body, elect a superintendent or secretary-treasurer, whose duties it would be to attend to the finances, to give instructions to the man employed, and to see that he did his work, and who should be some one who has interest enough and leisure enough to ensure the proper performance of the duties. The guild should also decide annually what scope the work would take on its street, and what amount each would contribute towards the fund. In most cases a flat rate would appear to me advisable, even though there might be some difference in frontage, but in a few instances where the frontage is particularly large, the owner might be willing to give more than the ordinary rate. Where a street is too long for one man two guilds could be formed. I might add that where there is vacant land, whose owner is unwilling to contribute, or in case of residents who cannot well afford to do so, the street should, it seems to me, be kept in order in front of their premises, uniformity being a desideratum.

HOW TO PLANT HYACINTHS.

FIRST in importance among hardy bulbs I should place the hyacinths. Much has been written about putting them in position in the bed and then covering them with soil, putting sand under them, etc.; but in actual practice these slow and laborious methods are not essential to success. If, however, the planter prefers to follow the more laborious—and possibly surer—method, then, remove five or six inches of the top soil and cover the surface of the soil where the bulbs are to be set with an inch of sand. One advantage of this

method is that it enables the planter to accurately place the bulbs in position as to depth and distance apart, so that the effect at flowering time is more regular as a whole than if planted with a dibber. The layer of sand has its advantage, inasmuch as it provides drainage at the base of the bulbs and minimizes the chances of decay from contact with manure in the soil and from water lodging immediately beneath them. The writer has seen good beds of bulbs obtained by both methods, but the last one described is possibly the surer one.



FLORAL NOTES FOR OCTOBER

BY

WM. HUNT,

O. A. C., GUELPH.

INSECT PESTS. With the advent of autumn weather comes the necessity of artificial heat in dwelling house and conservatory. The drier atmosphere caused by the use of artificial heat means close and increasing attention to plant life to prevent and ward off the attacks of insect pests, all of which appear and increase more rapidly as the need of increased fire heat becomes necessary.

By sprinkling or syringing the foliage of fuchsias, roses, heliotrope, chrysanthemums, ferns, and similar plants on fine sunny days, much can be done to prevent the appearance of thrip and red spider; whilst a shrinking or even dipping of the tips or leaves of many window or greenhouse plants in a strong solution of tobacco water will generally rid the plants of aphids or green fly, that appears more or less on almost all window plants. Cinerarias, scented leaved geraniums, pelargoniums, roses, calla or arum lilies, calceolaria, and the splendid

window plant, "Impatiens Sultani," or as it is sometimes called, the Patience plant or Zanzibar balsam, are especial favorites for the attacks of these little pests to window and greenhouse plants.

The tobacco solution can scarcely be made too strong for the above purpose, as an application of even the strongest solution will seldom harm the most tender plants, except perhaps to discolor slightly the foliage. A sprinkle or syringe with cold water an hour or so after applying the solution will remove all traces of discoloration.

To make the tobacco solution, put a good handful (about 1 pound) of raw leaf tobacco or tobacco stems in a pail, then pour boiling water on them sufficient to cover them two or three inches in depth, cover the pail up closely, and when the liquid is cold strain it off carefully, when it will be fit for use without any further diluting with water. The young growth of many of the

plants infested with aphids may even be dipped for a few seconds in the solution without any danger of injury to the plant.

Where raw tobacco leaves or leaf stems cannot be readily obtained, a good solution of tobacco can be made by unrolling two cigars and place them in a dish and pour a quart of boiling water on them, and treat as recommended for the raw leaf tobacco solution.

A quarter of a pound of quassia chips boiled for five or ten minutes in a gallon of rain water, allowed to cool, and when strained off the liquid can be used very effectively as an insecticide, and is less disagreeable to use than the tobacco solution. Soapy water made from common soap, free from chemicals, can be used for making either of the above solutions. The soapy water causes the solution to adhere more readily to the foliage, thus increasing its effectiveness. The plants should afterwards be syringed with clear water as before recommended.

CHRYSANTHEMUMS. The early flowering varieties will soon be in bloom. If large blooms are required, some of the smaller late buds should be pinched off. This disbudding process means fewer flowers, but flowers of very much better quality both in size and color than if the buds are left crowded thickly together. Disbudding should be commenced as soon as the buds are large enough to be pinched off easily with the thumb and finger. The flowers of chrysanthemums will be improved if the plants are given a little liquid fertilizer once or twice a week whilst the buds are swelling. The plants should be lifted indoors on cold nights, as two or three degrees of frost will injure the bloom.

The black aphid or black fly is often very troublesome to chrysanthemums, and are very hard to get rid of when once they obtain a hold on the plants. I have found

that by dissolving about an ounce of whale oil soap in one gallon of the tobacco solution before mentioned, these pests can be better kept under control. Dipping the infested tips of growth in this solution is the best method of using it. Soapy water made from ordinary common soap, mixed with the tobacco solution, will answer nearly as well as whale oil soap.

BULB CULTURE. October is the best month for planting spring flowering bulbs in the garden, as well as for putting varieties for flowering in the window or conservatory during winter. Roman hyacinths and almost all varieties of the narcissi, as well as Dutch hyacinths, succeed splendidly under pot culture. The Roman hyacinths and narcissi can be planted three bulbs in a four or five-inch pot in fairly rich loamy soil. The tips of the bulbs should be just under the surface of the soil after they are potted. Dutch hyacinths should be planted either singly in a four or five-inch pot, or three in a six-inch pot. After potting, the soil should be thoroughly watered, and the pots either buried two or three inches deep in coal ashes or light sandy soil in a cold frame out of doors, or treated the same way in a cool cellar, where they can remain for at least three or four weeks, when they can be taken into the window or greenhouse as required. If left outside during severe weather they should have a covering of straw or strawy manure or some similar material, so that the pots can be got at easily during severe weather. The principal point to be considered in the successful pot culture of bulbs is to keep the bulbs dark, moist and cool until they have well rooted in the soil. Water is seldom required after the first watering until the pots are uncovered and taken indoors, when they will require to be kept quite moist (but not sodden) at the roots, until they have done flowering.

Tulips do not succeed as well for pot plants as hyacinths and narcissi, but can be used very effectively for window or verandah boxes for use in early spring. To secure the best results the boxes should be filled with fairly good soil, and the bulbs planted two or three inches apart and about an inch under the surface of the soil, as recommended for pot culture. The soil should then be well watered and the box placed in a cool cellar and covered up with coal ashes, sand or light soil until spring, when the boxes can be brought up and placed in position as soon as the weather will permit. Early in April is about the time when it would be safe to bring the boxes out of their winter quarters. Some of the more tender bulbs, such as sparaxis and ixias, as well as hyacinths, tulips, narcissi, chionodoxas, scillas and other bulbs can also be used very effectively in these portable miniature bulb gardens. Lawn vases and rustic flower stands make a very effective and bright appearance on small lawns in early spring

when planted thickly with early flowering bulbs and treated as recommended for pots and window boxes. Both the boxes and vases would succeed quite as well, if thoroughly covered up out of doors, if a cellar is not available. In fact they would be much better out of doors than placed in a dry hot cellar, especially if protected so that they would not be frozen too severely. A little frost will not harm them.

In planting bulbs in the open ground the ground should be well dug and loosened up and the bulbs planted so that the tops are about an inch underneath the surface of the soil. Tulips might be planted an inch deeper perhaps to advantage, especially in light sandy soils. Crocus, scilla, and the smaller bulbs should not be over an inch below the surface of the soil when planted. The soil should be raked smooth and fine before planting the bulbs, and packed fairly firmly by patting it with the back of the spade after the bulbs are planted. Packing the soil prevents lifting by frost during winter.

PLANTING BULBS IN THE FALL.

THE time to prepare for the spring feast of flowers is in the fall, says Country Life in America. Too often people forget all about it until they see the tulips in the parks or in their neighbors' gardens, and then they hie to the bulb-seller in a quest for bulbs. Generally speaking, from the middle of October until the ground is closed with frost, the bulbs for spring flowering may be planted. Some of the species are late in ripening—lily of the valley, for instance—and so the planting stock is not available until November. In our northern climate frost and snow may have made their appearance before these are procura-

ble, so the expedient of covering the ground where they are to be planted must be adopted. Coarse bagging spread over the ground and a covering of three or four inches of leaves, hay, or litter of any kind will answer. The best bulb garden the writer ever had—a small one, 'tis true—was planted on New Year's day, the soil having been kept frost-free by the method described. However, unquestionably, the earlier the better. The first customers get the best stock, and the amateur will do well to order his hardy bulbs in September for October planting.

FLOWER AND PLANT LORE.

BY EDWARD TYRRELL, TORONTO.

CHRYSANTHEMUM—NATIONAL FLOWER OF CHINA AND JAPAN.

A PLANT with small yellow flowers was brought from Nimpu, China, in 1764, and cultivated for a short time in the Botanical Gardens, Chelsea, but was soon lost. The next one, known as the old red or purple, the first of the large flowering varieties, was introduced from France in 1795, where it had been known for about six years, and received into the Royal Botanical Gardens, although the ingenious florist of the far east had, with great ardour, cultivated them for many centuries.

The name *Chrysanthemum* was given by the Greeks, and is derived from the Greek words *Chrysos* (gold) *Anthos* (a flower), as it appears they only knew the yellow flower, and this name has since been handed down and applied to this genera of plants, although we have them in nearly all the colors of the rainbow.

Mr. John Reeves, a tea buyer at Canton, who acted as agent for the London Horticultural Society, was very energetic and increased the stock by procuring and sending over numbers of plants of various colors. Mr. Salter says the first English seedlings were raised in 1835, and in 1849 he had over four hundred new varieties.

The first *Chrysanthemum* exhibition was held in 1843, by the flower loving people of Norwich, Norfolk. At the close of the war with China, 1842, when Hong-Kong and the Isle of Chusan were retained by the British, Mr. Robert Fortune was sent out by the London Horticultural Society to collect rare plants, and one of the curiosities he fell in with was the Chusan daisy. This and another small flower from the same source were the parents of the tribe known from their resemblance to a rosette, as Pom-poms. These were introduced in 1847.

In Japan, a favorite floral decoration at fetes and festivals, consists in artificial *chrysanthemum* ladies made of many thousands of blossoms and placed in alcoves or summer houses, where they attract numerous admirers. Mr. Parsons, in his "Notes on Japan," says: "The first really fine *chrysanthemums* I saw were in Yokohama early in November. I was disappointed to find that they were in temporary sheds put up to protect them from rain and sun, and not in masses out of doors, as I expected to see them. They were excellently grown, and in the softened light of the oil-paper shades their colors showed to great advantage. The plants are treated by them much as they are with us. Some plants are reduced to a single stem, on which one enormous blossom is allowed to develop, with each flower stiffly tied to a horizontal support. But the excellence of the gardener is best shown in growing large bushes, which have been known to carry as many as four hundred flowers of medium size, all in perfect condition on the same day. An English gardener who had visited every show within reach of Tokio, including the Emperor's celebrated collection in the palace grounds, said that he had seen no individual blooms equal to the best dozen or so at a first rate London exhibition, but these great plants with their hundreds of flowers were triumphs of horticulture."

This beautiful and useful flower is of very easy culture, and might be grown in pots in the open air in summer, and removed to a sheltered place (but in the sunlight), such as a porch or bay window as soon as the cold weather comes on, or a home made frame might be easily constructed at a very small cost, with lights for a roof, and one could have very nice plants for the house until very late in the season.

CHRYSANTHEMUMS

THE past year made it most evident that there was a great revival of interest in the chrysanthemum, and the interest is being well sustained. Long may it bloom, say I. No flower I ever grew has afforded me more genuine pleasure or brought me in touch with so many enthusiastic worshippers at its shrine.

In preparing for the future I look upon the probationary period out in the frames as the foundation of the plant. The chrysanthemum is naturally a cool growing, hardy plant, and getting it out in the open air (for the glass should always be entirely removed during the day) is merely getting the plant back to its natural conditions, and the result is seen in a close-jointed sturdy little plant that is started in its way rejoicing with a vigorous constitution, and with the glow of health on its shining foliage.

We generally plant out about the middle of May, and a few days earlier or later, as the young stock may need. As regards the soil, the Mum is not over particular, though a light loam is better than a heavy soil. In heavy soil, unless one is very careful with the watering, the plants are liable to be caught too wet some time when a rainy spell sets in, and leaf spot appears in consequence. It will be found a good plan to incorporate about a sixth part of burnt refuse from the garden with the soil at planting time. This refuse is rich in potash and lime, both essential for the building up of the plant, and they help to leaven up the cruder loam.

After the benches are filled, set out your plants ten inches apart each way, and then pound the bed down solid. Don't be afraid of getting it too hard. Make it firm, as your aim should be to keep your plants as short-jointed and dwarf as possible, and this they will not do if they are permitted to run too readily through the mass of new soil.

Just now I said plant ten inches apart

each way. This distance is about as little as it is wise to give, if you are looking for the extra quality flowers, though some varieties that, like Lunderbruck, droop their foliage down close to the main stem, may be planted an inch closer. It has been said that the man that makes two blades of grass grow where only one grew before, is a benefactor. This rule cannot be made to work out in growing exhibition Mums. In this case, the man that tries to grow two flowers where his neighbor is only growing one will always get lost in the shuffle when it comes to the prize-taking.

The question of when, how and what to feed his plants is often the most difficult problem confronting the novice. When to feed is a question that the condition of the plants themselves will best answer. As long as they are keeping a dark healthy green and making large foliage they will not need feeding to any extent. We generally commence feeding about ten weeks after planting, which is, say, by August 1. At this time a top dressing of bone meal and rotten manure is applied, and from then on liquid manure is constantly given. Some growers think it better not to feed before the bud is set, but while, as before stated, you must be guided by your plants, whether the bud is set or not is of little importance if the plants are needing nourishment. We always use a Kenney pump in applying liquid fertilizers, and find it saves much labor. We use chiefly sheep manure for making liquid, with a change to sulphate of ammonia or nitrate of potash in between, using these last in the proportion of one pound to a 50-gallon barrel of water.

As each variety shows color, we discontinue feeding, as experience has taught us to keep well on the safe side, and feeding too long means a soft, flabby, easily injured flower, if nothing worse.—*American Gardening.*



The Canadian Horticulturist

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LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

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DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

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OTTAWA HORTICULTURAL SOCIETY.

THE September show of the Ottawa Horticultural Society seems to have been a complete success. St. John's hall was crowded to its utmost capacity. The chief interest centered about the contest between the children of the various schools for the showing of the finest collection of asters. The prizes for this exhibit were donated by Mr. R. B. Whyte. Seed was distributed to 135 children, and of these 82 brought in exhibits. Before the decision of the judges was read an address was given by Dr. Fletcher on "The Value of Floriculture in the Training of Children," and Mr. Whyte, the donor of the special

prizes for the school children's contest, gave a short address in which he thanked the teachers of the various schools for the kindly interest they had taken in the contest and the aid they had so generously given. Mr. Whyte announced that in addition to the money prizes, 700 gladioli bulbs had been given to the eighteen successful children for a competition to be held next fall. Dr. Fletcher announced the result of the judges' awards and presented the prizes. He said that the judges had had great difficulty in coming to a decision, and in doing so had taken into consideration the size, shape and color of the flowers, the strength of the stems and the arrangement in vases.

OUR HORTICULTURAL SOCIETIES.

A GOOD FLOWER SHOW.

THE flower show held in the town hail, Kincardine, was a complete success.

It does one good to spend a day or evening amongst such an exhibit of plants and fruits as the people of Kincardine had the day and evening of Wednesday last in the town hall, and the directors of the Horticultural Society may feel pleased at the many expressions of appreciation and praise that came from the lips of most of those who saw the exhibit.

True, our large towns and cities may be able to have much larger displays of flowers and fruit, but it is doubtful if any had greater variety, or a finer collection of healthy plants.

The cut flowers were magnificent and many of the boquets showed superior mechanical skill and taste in the pleasing blending of color and form.

To enumerate the different kinds of flowers and fruit would require more space than is at our disposal, for the many hundreds of beautiful flowers in pots or vases to enumerate would necessitate a systematic catalogue even to name.

Asters of many kinds graced the tables in the center in great quantities, whilst dahlias, gladioli, stocks, salpiglossis, sweet peas and pansies made a display of color that could not but be admired, whilst plants of less note, but equally beautiful, of nearly every common kind, and many rare, forced many to stop and admire.

PAPER HUNTING

One of the most exciting of all riding games is paper hunting, or following a trail made by dropping pieces of paper. It can be made as dangerous as steeplechasing or no more so than an ordinary gallop over the fields. The danger is in the fences to be ridden over. There is no limit to the pace but the

The fruit, most of which was shown by Mrs. A. Patterson, A. Clinton and Rev. Pomeroy, was a center of attraction. Mrs. J. Hiles and J. S. Gadd exhibited some well laden branches of plums, and John McKay a monster head of sunflower.

The pot plants were good, and must have been a great labor to the collectors. Handsome vases with precious plants were given cheerfully for exhibition, and we learn that all were collected and returned without a break or a mistake.

There were some very handsome begonias of very many kinds, from the large leaved Rex to the most tiny of the race; grand tuberous begonias vying in beauty with the fuschia; gloxinias, of the most delicate coloring.

Showy spikes of Campanula attracted much attention, as did also agapanthus and two plants shown by Mrs. Shunk were beautiful and rare, for their names we could not learn. One was said by those who know, to be Eden's Bower, very peculiar one sided flower, with foliage resembling a fuschia, but here it looks like specializing too much, and to avoid leaving out any, must say that every flower and plant shown was well worthy of the grower's name being attached.

Music was supplied on piano and by brass band. Addresses were delivered by the mayor and others.—*The Reporter*.

speed of the leading horse and the necessity of keeping the trail. The "hare" as the man a-horseback who lays the trail is called, is expected to foil his pursuers, the "hounds," as often as he can by the arts of the fox, or by his own ingenuity, only restricted by certain rules of the game.—*Country Life in America*.

Question Drawer

NEW FRUITS.

SIR,—I send you two seedling peaches for your opinion of their value.
Ridgetown.

S. RUTH.

These are very fine yellow peaches, of good size and excellent quality; but so similar to Fitzgerald that we do not advise introduction to the public as a distinct variety.

WALLER'S SEEDLING.

SIR,—I am sending you per express two apples. They are something that I cannot get a name for from my friends around here, and I would take it as a great favor if you will write me and tell me the name if possible. The tree grew up from seed with others, but as it turned out good I cut the others away and left this, and we find it a very fine apple.
Napanee.

W. T. WALLER.

This is a very beautiful seedling apple, larger than the Duchess, exceeding it if possible in beauty and of better flavor. Indeed, it appears to be a dessert apple of considerable value, and one that should be fully tested. Size, $2\frac{1}{2} \times 3\frac{1}{4}$ inches, of very regular even form; skin well covered with deep red; flesh crisp, juicy and high flavored.

TO PREVENT MILDEW ON ROSES.

SIR,—Would you kindly inform me through The Horticulturist what is the best treatment for roses to prevent mildew? I have sixty in one bed and about seventy-five per cent. of them are mildewed. Has the wet season anything to do with it? Would a weak solution of copper sulphate be suitable?

W. A. BROWNLEE.

Answered by Wm. Hunt, O.A.C., Guelph.

There is no really effective method of preventing the appearance of mildew on out-door roses during the prevalence of cold wet weather, or on poorly under-drained soils. Imperfect sub-soil drainage, and extremes of either moisture, drought or temperature will induce mildew. The best known safe remedies are to thor-

oughly dust the leaves of the plants with flour of sulphur early in the morning when the dew is on them. Repeat the operation once or twice a week during the autumn. If the mildew is very bad, syringe the plants once a week with bordeaux mixture. Ten gallons of this mixture can be made by dissolving 1 lb. of copper sulphate (bluestone) in a pail of luke warm (or rain) water. Tie the bluestone up in a piece of coarse sacking and suspend it in the water to dissolve quickly. Slake the same quantity (1 lb.) of fresh new lime in the usual way, and when ready add cold water enough to make a pailful of the lime solution. Then mix thoroughly the two solutions in about six gallons of cold water, making ten gallons in all. I have found this mixture very good for use in the autumn on rose bushes badly affected with mildew. Apply when the foliage is dry, and keep the solution well stirred.

Gathering up the old foliage carefully from underneath the bushes in late winter or early spring, and burning it, will help to prevent the appearance of mildew, as it destroys the mildew spores.

A sprinkle of air-slaked lime applied to the soil when forking it over in springtime is beneficial.

A solution of sulphate of copper alone, to be effective, would be dangerous to use on the plants, without the use of lime with it. If Bordeaux mixture is applied the sulphur will not be necessary.

HARDY WINTER APPLES.

SIR,—Kindly inform me which you consider the best winter for home use for this section of country.
GEO. WOOD, Erasmus.

Probably Scott's Winter is the hardiest good winter apple for your section. There

are other finer varieties, but they ripen earlier, as for example the Wealthy, which is one of the most beautiful of apples, and profitable for market. In northern sections it is sometimes classed among the winter varieties.

A HARDY RUSSET APPLE.

SIR,—Which is the best Russet apple for this section?

GEO. WOOD, Erasmus.

The American Golden Russet has the reputation of being quite hardy, and might be suitable to your purpose.

DEAD SIDE OF CEDAR HEDGE.

SIR,—May I ask you to say, either in the Canadian Horticulturist or by letter if you prefer, the cause of complete death of one side of my cedar hedge about eight years old, the side exposed to the cold winds being O.K. The dead side had bank of snow lying against it all winter. Would it be smothering? How can I repair—by planting small cedars close under the side?

Manitowaning.

W. J. TUCKER.

The so-called white cedar (*Arbor Vitæ*) has very tender branches, which a very light weight will destroy. The writer has a beautiful specimen of *Thuya Pyramidalis*, which is a kindred variety of *Arbor Vitæ*, of which he was very proud, until a few

days ago a small boy climbed it for a bird's nest and every branch touched by his feet turned brown and died. The only hope is to prune off the dead portions and allow the small shoots to grow out; but it can never be again the beautiful tree it was.

We have no doubt that Mr. Tucker's hedge has suffered on the one side from the weight of the snow. While the treatment above described might help to some extent; or, possibly the young trees planted near would grow up and hide the bare places, yet the surest way would be an entirely new plantation if the damage is very serious.

FRANCE BUYING CANADIAN APPLES—THE ENGLISH MARKET.

Not only have enquiries been made at Ottawa by French firms for our apples; but French buyers are here and have already made purchases in the West. One of these buyers wanted to contract 30,000 barrels of seconds for making cider from a firm here. He stated that if he could not buy the fruit he would endeavor to buy the cider. A purchase of 5,000 bbls. is reported as having been made by a French firm in the West, but the terms were private.

There is no doubt that Europe as well as Great Britain is short of apples, and will require considerable imports from Canada and the United States; but whether present prices in Liverpool and London will be maintained when the increased shipments now on the way are received there remains to be seen. A cable from London received here on Tuesday last advised a very strong market, Nova Scotia gravensteins bringing 20s and other Canadian varieties 15s to 18s per bbl.

SPIRAEA ANTHONY WATERER.

THIS charming plant is just beginning to be appreciated. It has many admirable qualities all its own. It is exceedingly hardy, coming into leaf sometimes before the snow is entirely out of sight. It starts from the ground each spring and consequently blooms on the growth of the same season. The new leaves are as pretty as flowers, being irregular, in white, pink and green. Later on they lose the brightness

of leaf and the stiffer stems appear, growing from twelve to sixteen, sometimes eighteen, inches, and bearing blooms as large as the stem will hold, of pink flowers lasting in bloom for a long while. The many situations for which such a plant is useful are easily understood, but one I think of just now is too important to omit special mention; that is, for covering graves in country cemeteries.—C. B. W.

BULBS FILL SIXTEEN ACRES.

ONE HUNDRED THOUSAND CANNAS, CALADIUMS, DAHLIAS AND TUBEROSES FORM A BEAUTIFUL WORLD'S FAIR FEATURE.

St. Louis—Fifty thousand cannas, with their gorgeous array of colors; great caladiums, or "elephant's ears," with their mammoth foliage; modest dahlias, with their daintily colored petals, and beds of tuberoses, with their wax-like flowers and intense fragrance, combine to make a floral exhibit that will cover sixteen acres of ground on the World's Fair site.

A North Carolina company furnished the bulbs for this display, and Joseph H. Hadkinson, superintendent of outdoor planting for the Department of Horticulture, has charge of the installation. The plants will not be seen in one mammoth bed or tract, but will be scattered in well modelled groups over the northern and eastern slopes of Agriculture Hill.

Many thousand choice tuberose bulbs, planted in beds in the six acre World's Fair rose garden, will next spring send up thrifty blooming spikes, and the fragrance of the blossoms, almost overpowering when breathed alone, will mingle with the more delicate perfume of the rose.

The tuberose bulbs will be so selected and planted that commencing with the early summer there will be a profusion of blossoms, and fresh supplies will constantly succeed one another until frost comes. The caladiums are grown mainly for their foliage, as the blossom is of little value. A large group of these almost tropical plants will be the corner of the terrace ten feet high and a quarter of a mile long that skirts the mammoth Palace of Agriculture on the eastern side. This terrace, straight as an arrow for nearly the full length of the giant structure, makes a curve near the southern end and forms a bank for

some of the beautiful artificial lakes between the Agriculture and Horticulture buildings. The caladiums thrive near the water and here they will attain perfection.

That the dahlia may no longer be considered a "back-yard" flower will be demonstrated by the prominent position allotted to it in the World's Fair garden, by far the largest and most pretentious ever seen at any international exposition. Time was when the dahlia was small and insignificant, but florists have taken it from that class and have developed it so that it ranks with the stately chrysanthemum, while blossoms now range from the size of a button to the size of a man's hand. The petals that radiate in a single row from the solidly colored corolla, take on all the tints of the pæony or rose and when cut they retain their beauty for many days.

Until recently the bulbs for all these flowers were imported, and this monster exhibit will demonstrate the progress in the industry of growing, flowering and ornamental bulbs in this country.

Fish Inspector Berndt, of Honolulu, H. T., is making a collection of fish from Hawaiian waters that will prove an interesting exhibit at the World's Fair.

A copy of the pamphlet, "Principles of Profitable Farming," is before us in a new and revised edition. The principles of proper rotation with leguminous crops and the great advantage to be derived by such methods are explained in the pamphlet in a fascinating manner. A description of the Experiment Farm at Southern Pines, N.C., where the best methods of using fertilizers are being studied and put into practice, is also a valuable feature of this publication. A thorough perusal of the book would be of interest and benefit to all practical farmers and copies can be had, free of charge, by writing to the German Kali Works, 93 Nassau Street, New York, N.Y.



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FIG. 2665. THE GARFIELD PEACH.

THE CANADIAN HORTICULTURIST

NOVEMBER, 1903

VOLUME XXVI



NUMBER 11

THE GARFIELD PEACH

(BRIGDON.)

A fine yellow-fleshed peach of about same season as Early Crawford.

ORIGIN: New York State.

TREE: Vigorous, moderately productive.

FRUIT: Roundish, ovate; size large, $2\frac{1}{2}$ x $2\frac{1}{2}$ inches; average weight, 5 ounces; color, yellow with red cheek; suture marked; stone free.

FLESH: Yellow; texture tender and juicy; flavor rich and excellent.

QUALITY: Cooking, very good; dessert, very good.

VALUE: Market very good.

SEASON: August 25th to September 10th.

Mr. W. W. Hillborn, our peach experimenter in the County of Essex, writes:

The Garfield Peach is of the Early Crawford type, perhaps a little more highly colored, ripens a little earlier, fruit bud more hardy, therefore more regular crops are obtained of it than of the above named variety. I would plant it in preference to Early Crawford for either home use or market, as it has proved equal in every respect and superior in some points to that old standard variety. I have fruited it for some years and consider it one of the best market sorts grown.

Editorial Notes and Comments

NOVEMBER is as early as the fruit farmer can find time for the Thanksgiving holiday, for his apples and his grapes keep him busy every hour during the month of October.

PRUNING may be commenced this month as soon as the leaves have fallen. The work is much more important than is commonly supposed, and much finer fruit would result if more time and attention were given to pruning and cutting back our fruit trees and vines.

THE MUMMY FRUIT on plum trees should be gathered and burned, because it contains the spores for propagating the fungus for the coming year.

MICE must be guarded against, especially in young orchards. In plots where clean cultivation is given, the trees are quite safe, but, if grass or other rubbish is about the trees, their destruction is almost certain when the heavy snowfalls come. A simple protection is a mound of fine earth packed

about the base of the trunks, taking care first to remove all rubbish.

DRAINAGE of orchard land may be done in open weather of the fall and winter, and is most necessary where the water is level and is not below the tree roots.

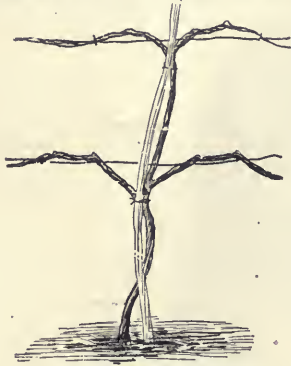


FIG. 2666. THE KNIFFEN SYSTEM OF GRAPE PRUNING.

THE KNIFFEN SYSTEM of grape pruning is the simplest and least laborious, and may be easily understood by a study of the accompanying diagrams. Only two wires are needed in making the trellis. We will describe fully if our readers desire.

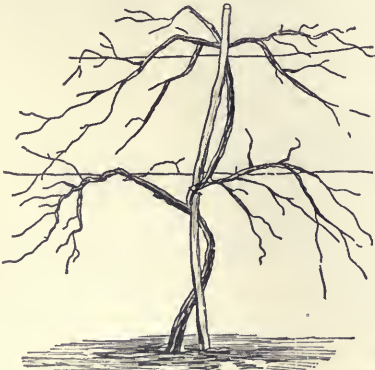


FIG. 2667. THE KNIFFEN SYSTEM.

DWARF PEAR TREES should be well cut back, especially the new wood, in order to keep up plenty of young growth, for on this the finest fruit is produced.

THE COUNTY FAIRS.

THAT our County Fairs are sadly in need of some radical improvements is quite evident to any one who is at all familiar with them. The old unpainted building, often misnamed "the Palace," is enough to give "sore eyes" to visitors, while the grounds are no improvement upon the barest and most uninviting country field, without shrub or shade tree for shade or ornament. This criticism applies to the Bruce County fair grounds at Walkerton, spoken of on page 402; to the Welland County fair grounds at Welland, all of which we have recently visited, and no doubt to many others.

The fakirs, who swarm to these fairs, are a disgrace, and should be routed out by the directors. At Welland the game tables were surrounded by green country youths freely putting up their money in the vain hope of winning a pile of dollars.

THE MODEL FAIRS.

Our Ontario Department of Agriculture has this year offered to aid those fairs which so consent, in several ways; as for example, the appointment of expert judges, the giving of demonstrations in domestic science, in apple packing, and by having experimental plots, right on the very fair grounds. Nor is this all, for demonstrations are also given in chicken feeding, and in the killing, plucking and packing of fowls for shipment to market, in the handling of bees, and in various other interesting and instructive diversions which are a means of education to the young farmers, and which should easily take the place of the fakirs. These offers, made by Mr. G. C. Creelman on behalf of the Department, have been adopted in six places, and their names are: Walkerton, Simcoe, Owen Sound, Brantford, Whitby and Renfrew.

NORFOLK COUNTY FAIR.

The fair at Simcoe on the 13th, 14th and 15th of October was well worthy of the compliment paid it by Mr. Alex. McNeill, Dominion Fruit Inspector, when he remarked to the secretary, "There are but two fairs in Ontario, this and the Industrial!" The grounds are very well laid out; the old "Crystal Palace" was, fortunately perhaps, recently burned down, and its place taken by several tents and smaller single floor buildings. One of these, which was devoted to art exhibits and ladies' work, had three aisles the whole length, with partitions on which the exhibits showed to excellent advantage, while the whole was painted a suitable tint of green. The grounds were in part elevated, and well planted with shade trees, so that altogether the place was attractive to visitors.

Another feature of this fair was the means adopted to interest the officials in the success of the Fair which was continued for three days. On the evening of the second day all the officers, judges, visitors and others were invited to an informal gathering at the Battersby House, where after social converse and light refreshments, brief addresses were given on subjects pertaining to the various exhibits, followed by a free discussion.

THE EXECUTIVE.

Our old-time friend, Mr. H. H. Groff, is the president of the society, and conducts a meeting in a most happy manner. A banker by vocation, but a successful horticulturist and plant breeder by practice and from love of it, Mr. Groff has advanced from being an amateur to the enviable position of a scientific horticulturist, whose contributions to the beautiful in his specialty, the gladiolus, has brought him a world-wide reputation. The superintendent is Mr. W. F. Kydd, successful farmer and horse breeder, whose ad-



FIG. 2668. MR. H. H. GROFF, SIMCOE.

dresses before the Farmers' Institutes have been much appreciated. He is an energetic Scotchman, and is as deeply interested in the success of the fair as if it were his own private business. But the man to whom, of all others, the working out of this excellent model fair at Simcoe is due, is Mr. Thomas Murphy, the secretary, whose distinguished ability in conducting the Simcoe Fair to such magnificent success, has led to his appointment as President of the Canadian Association of Fairs and Exhibitions.

A GREAT SUCCESS.

The Norfolk County fair at Simcoe, although by no means perfect, may well be called a model fair, for, not only in point of exhibits, but also in point of attendance it was most exceptional. Fakirs were not allowed on the grounds, but instead there were interesting and instructive addresses by experts. In one tent Miss Mills, of Guelph, and Miss Smith, of Hamilton, gave demon-

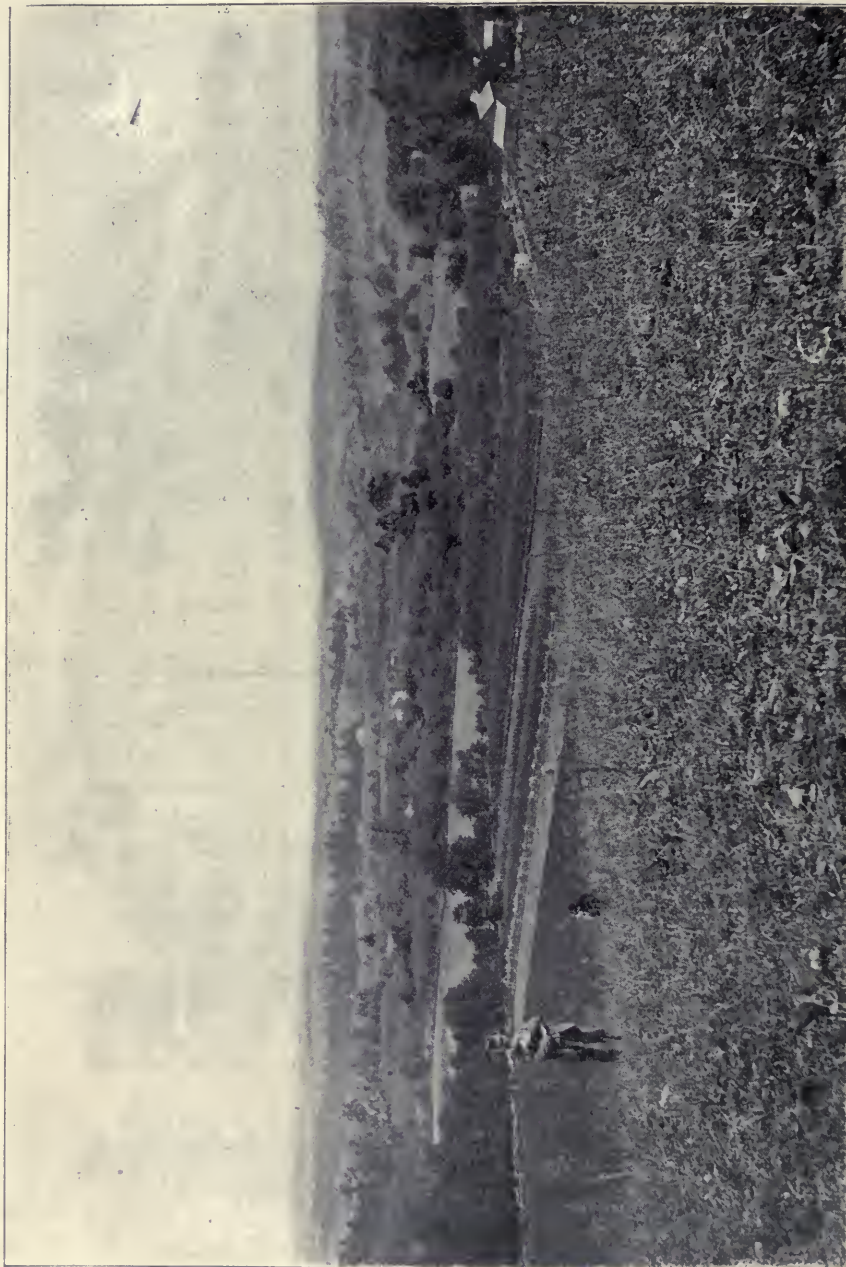


FIG. 2669. A VIEW NEAR WELLAND.

strations in cooking; in another place Mr. Alex. McNeill, chief fruit inspector for the Dominion, gave an address on apple packing, and in another part of the grounds Mr. Zavitz gave the farmers pointers on grasses and grains, from experimental plots sown on the grounds for the purpose.

EXPERT JUDGES NEEDED EVERYWHERE.

The fruit exhibit at Simcoe was remarkably good, and the varieties correctly named. There were magnificent samples of King, Spy, Mann, Bellflower, Hubbardston, Cayuga, Greening, Baldwin, Snow, etc., and the premiums were wisely awarded by an expert fruit judge, Mr. T. H. Race, of Mitchell.

At Welland County fair, which we visited the day previous, the case was very different. Expert fruit judges were not secured, and numerous misnamed fruits remained on the table uncorrected. For example, three prizes were offered for the best collection of 12 varieties of apples correctly named, and in each prize collection there were misnomers which remained uncorrected. In the 1st prize collection *Gloria Mundi* was called Twenty

Ounce Pippin, and Cabashea (or Twenty Ounce Pippin) was called King. In the second Pewaukee was named Hubbardston, and an unknown variety, Wagener; and in the third prize collection Pewaukee was called Wallbridge, and some unknown varieties called Wealthy and Maiden's Blush respectively. We submit that such work, instead of helping, is a hindrance to the value and success of any fair.

OUR DIRECTOR FOR LINCOLN, WELLAND AND MONK.

WHILE visiting the Welland Fair we met Mr. E. Morris, who represents the nurseryman's interests on our Board of Directors. With a business in hand too large, and a mind too broad to allow him to talk shop at our meetings, his presence has always been of value in giving information to us from the professional nurseryman's point of view. Mr. Morris is an example of the success which comes to a young man who, in the words of the honorable Minister of Agriculture, possesses the three elements needed, viz., "Pluck, Plod and Perseverance." Brought up in England, the son of an English farmer



FIG. 2670. ENTRANCE TO THE FONTHILL NURSERIES.

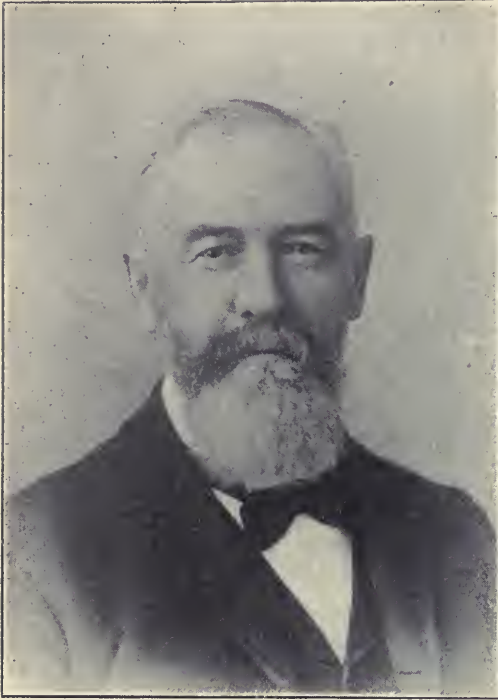


FIG 2671. E. MORRIS, FONTHILL, ONT.

of eight hundred acres of land, he was early trained in the details of agriculture, but after landing in Canada, when still a boy, he was persuaded by his father to enter into the mercantile business, which is carried on with success for some years in the town of Oshawa. This experience gave him excellent business training. Having spent his boyhood days on the farm, he longed for outdoor business, and decided in 1866 to go into fruit growing, and bought a farm in Niagara District for that purpose—being perhaps the first man in Ontario to grow small fruits as a business. His success in this brought him many customers for plants, and he then resolved to go into a general nursery business, and bought a small established nursery of fruit trees, and soon afterwards purchased the Fonthill Nursery. Two years later, finding the business, in all its departments, more than he could pro-

perly look after, formed a partnership with Stone & Wellington, under the firm name of Morris, Stone & Wellington, lately changed to Morris & Wellington. With Mr. Morris' natural talent, and love for the business, he soon mastered the practical part of it, and is now acknowledged to be one of the best nurserymen on the continent.

During our visit at Fonthill Mr. Morris gave us a carriage ride through a huge block of about 400,000 apple trees, ready for sale this fall and next spring. "We plant," said he "about 400,000 per annum, and sell about 300,000. That is, we classify the stock when selling size, into first class and culls. The latter we pull and burn, and only good stock goes out to fill the orders. We have to increase our planting each year, to try and keep up with the increased demand; even then, like other nurseries, we often fall short on varieties that suddenly spring into demand."

One feature of the business that is pleasing and shows prosperity of the country, is the greatly increased demand for all kinds of ornamental trees and shrubs. This branch of the business is increasing faster than any other, although it is very evident that apple growing is still at the front in Canada, and in our opinion it justly holds the first place for profit, taking one year with another, notwithstanding the low prices that sometimes prevail.

FRUIT PACKING DEMONSTRATIONS AT THE FAIRS.

SENIOR Fruit Inspector Alex. McNeill is still attending the fall fairs giving his interesting and instructive demonstrations of the proper packing and marking of apples and pears for the export trade. He was at Brantford on October 2, at Burford on October 7, and on the 15th at the Simcoe Model Fair.

PROPER FRUIT STORAGE.

ONE of the most important provisions for successful fruit growing is convenient cold storage. There is no pear grown which is a greater general favorite than the Bartlett, but in its own season there is a surplus of it, which is still greater by reason of the imports from California; consequently low prices prevail for a time until the market clears, when good and remunerative prices rule.

The apple crop in Ontario is an important one, but for want of safe storage the grower is often at a sad disadvantage, for if he sells to the speculator the fruit becomes over ripe in the heaps while waiting the packers; and, if he packs it himself, he must hurry it off before the approach of cold weather. Now a good storage, which could be cooled in summer and kept just above the freezing point in winter, would help in every way; apples waiting the packers could be stored safely and packed dry; Bartlett pears and Crawford peaches could be held over until the prices advanced; while apples to be packed by the owner could be stored as gathered and packed at leisure during the winter or spring and forwarded to the best markets when most in demand.

There is no doubt at all that a reasonable sum of money put in to such a storage as would maintain an even temperature of about 33 degrees at any season of the year, would be a paying investment for a company of fruit growers in any section, or for the individual one whose orchard is extensive. Chemical refrigeration might be too expensive for ordinary circumstances, but ice storage is economical and within the reach of every one.

SUCCESSFUL ICE STORAGE.

The Illinois experiment station gives the following:

An account of the construction of a cold storage house, capable of holding 2,500 bbls. of fruit and

of storing apples in cellars insulated for the purpose (E. S. R., 14, p. 356). During the season of 1901-2, 2,000 bbls of fruit were placed in the cold-storage house October 5th, and 70 tons of ice put in the refrigerator. The temperature of the storage room fell rapidly after the ice was put in to about 33° F., and this temperature, or a little lower, was maintained throughout the experiment. The cost of storage per barrel of fruit up to April 23 (about 7 months), was 19.1 cents., or 30.9 cents less than the usual charge for apple storage. Based upon these results it is estimated that the building, if stored to its full capacity each year would pay for itself in five years.

The fruit in the building was examined from time to time during storage. Without exception the fruit kept well. "There was no scald, no withering. The fruit remained plump and in perfect condition, and the percentage of rotten fruits was very small." The results are believed to plainly show the utility of buildings of this character cooled by ice. "Commercial growers of apples can well afford to invest in similar houses and thus add greatly to their profits. The experiences in cellar storage show pretty clearly that horticulturists can not afford to insulate a cellar for storing fruit. The earth is too good a conductor of both heat and cold. Fruit stored in these cellars was more or less wilted and the percentage of rot was quite high.

Experiments were made with Ben Davis and Winesap apples in storing at temperatures of 31, 33, 35 and 37° F. The Ben Davis variety kept better and scalded less at 31° than at any other temperature. The difference was not so striking with the Winesap variety, but was in favor of the lower temperatures.

Another problem investigated was the degree of maturity most suitable for picking apples to be held in cold storage. The results obtained indicate a great superiority in the keeping qualities of mature over immature fruit. The mature fruit in storage showed a much smaller percentage of rot, was less subject to scald, did not shrink as much, had better color and better selling qualities when removed from storage.

In this connection it is worth noticing that the Ontario Department of Agriculture has endeavored to encourage the building of local cold storage houses for farmers' produce, by not only providing plans for their erection, but by advancing a per cent. of the cost.

APPLES IN MIDDLESEX COUNTY.

Mr. John M. McAinsh, Melburn, Ont., writes :

The apple crop in this section is principally Northern Spy and they are exceptionally good quality, better than they have been for years. There is only one buyer around and he is only offering one dollar a barrel, the farmer to pick the apples, board the packing hands and draw the

barrels to the railway station. Now with the big demand and high prices in the British market it seems a ridiculously low price to offer. As you are well posted in the matter I want you to inform me on the following particulars: 1. What is the cost of shipping a barrel of apples from Grimsby to the British market including of course not only freight but commission and other charges? By a barrel I mean whether they are shipped in bulk in large quantities? 2. What prices are being paid by buyers in your section of the country? 3. What do you think would be a fair price for buyers to pay in the vicinity of St. Mary's, Ont., which is our shipping station? At present it looks to me as if apple buyers have formed a combine to gobble up all the profits which is to be got in the apple business this year.

The great mistake of our apple growers generally is here evident. Depending upon the travelling buyer, their apples waste while waiting for him, until they are glad to accept any offer. Then, barrels are so scarce and so high priced, ranging from 40c. to 50c., and so difficult to get in any quantity, that buyers cannot operate, and immense quantities must either go to the evaporator or else waste in the orchards. Apple growers should secure their own barrels in advance, and be prepared for such an emergency, for then they could combine and ship when they chose. As to prices, buyers never pay according to the foreign values, but according to the values in Canadian orchards; and \$1.00 a barrel for the fruit is not an uncommon average price offered.

Buyers in Western New York have, says Country Gentleman, been paying \$1.75 to \$2.25 for the run of apples on trees. In Pennsylvania, according to a correspondent of the same paper, as low as 85c. to \$1 has been offered. In West Virginia, according to another correspondent, apples are dull, with choicest at a dollar a barrel.

This season apple growers might safely take the risk which is now taken by apple buyers, and export their own fruit in car lots, and they would no doubt double the net proceeds of their apple orchards.

The freight on apples in barrels from Grimsby to Glasgow is about \$1.08 a barrel, to which must be added landing charges,

commission, etc. The commission charged in Great Britain is about 5 per cent. of the gross proceeds.

LOW PRICES OFFERED FOR APPLES IN SIMCOE COUNTY.

Mr. Alexander Armstrong, Barrie, complains of the low prices offered in Simcoe county. "We have very few buyers," says he, "to purchase our apples. I have some very fine Colverts and Wealthys, and the best offer I had for them was 65c. a barrel, and now I have from 65 to 75 barrels of Russets, Snows, and other winter varieties, and am only offered 90c. for Snows and \$1 for Russets."

Of course, these are low prices for good winter apples, in consideration of the prices in foreign markets; but, so long as winter apples are only worth about \$2 in our markets, and barrels are worth 45 cents, and packing, freight and commission costs at least 50 cents more, buyers cannot be expected to take the risks of shipment and offer much more than \$1 for the fruit.

HOW TO PACK A BARREL OF APPLES FOR EXPORT.

WHY not each man pack his own apples, and unless he has a good offer, why not combine with his neighbors and make up a car lot for some responsible British apple house. Names of reliable wholesale houses in England, Scotland, Hamburg and Antwerp will be cheerfully furnished by the editor of this journal, who is himself exporting two carloads a week to Glasgow, Scotland. The following directions for packing a barrel of apples have been sent in by Mr. Eben James, of Toronto, and we think them worth giving to our readers:

"The rule most observed by the largest export packers in Canada is to discard the old system of leaving apples to sweat in the orchard, believing it is generally detrimental to the keeping qualities, and instead to pack as picked off the trees. As the apples are picked they are placed on a canvas table resembling a camp bed, the firsts and seconds sorted out, and the culls discarded.

should be placed on a plank, and the quarter hoops properly tightened and nailed. Apples of a good average size, not the largest nor smallest, but uniform, should be selected for the face, and placed stem end downward on the bottom of the barrel, which should be covered as far as possible without leaving unnecessary holes; follow with a basket selected same as face, then fill in with standard fruit (see requirements), till half full; the barrel should then be jarred, but not shaken enough to displace the face, and as each additional basket is filled in it should be jarred. When filled it should be well racked with a circular board having a pad on one side. See that apples when well racked will be hardly an inch above barrel, carefully turn stem ends up, with the exception of outer row, which are better blossom up; arrange proper sized apples so that any holes are filled, making barrel present an even surface, slightly rising to centre, thereby insuring even pressure. Press in head, line and nail carefully, cut nails preferred. Brand neatly faced end.

Packer must be governed by variety of apples in height in barrel when pressing. Examine occasionally when packing and if you find (providing you have racked well), that skin is severely dinged or broken, press lighter. Storage apples need very little pressing.

STANDARD REQUIREMENTS OF NO. 1 AND NO. 2 APPLES.

THE following is a copy of a resolution by the North American Apple Shippers Association regarding grades, and, although not just the same in wording as the standard set down by our Dominion, are essentially the same and in some respects more in detail.

Resolved, that the standard for size for Number 1 Apples shall not be less than two and one-half inches in diameter, and shall include such varieties as Ben Davis, Willow Twig, Baldwin, Greening and other varieties kindred in size. That the standard for such varieties as Romanite Russet, Wine Sap, Jonathan, Missouri Pippin and other varieties kindred in size shall not be less than two and one-quarter inches. And further, that number one apples shall be at time of packing practically free from the action of worms, defacement of surface or breaking of skin; shall be hand picked from the tree, a bright and normal color and shapely form.

Number 2 Apples shall be hand picked from the tree; shall not be smaller than two and one-quarter inches in diameter. The skin must not be broken nor the apple bruised. This grade must be faced and packed with as much care as No. 1 fruit, and no wormy or spotted fruit packed.

We have adopted XXX to mean No. 1 and XX to mean No. 2. Besides this, we pack an extra grade and call it Fancy XXX.

THIRD CLASS APPLES NOT WANTED IN ENGLAND.

WE have heard so much about the failure of even the common stock of apples in England, which are used for cider and preserves, that we had about decided on putting up some third class stock for export, as an exceptional venture, but our Glasgow consignee does not favor such an experiment even this season. He says: We have been making inquiries of the preserve makers and find they have contracted for nearly their full requirements for the season. Therefore, I cannot recommend you to ship this third grade of fruit, as there would be practically no demand for it here; and, if left to the mercies of the preserve makers on this market, they would be inclined to give very little for it, and I am certain it would not pay freight and expenses.

CANNING FACTORIES AND JAM FACTORIES.

THE Oakville Star of October 1 strongly advocates the establishment of numerous factories for the preserving of fruit throughout the fruit belt of Ontario. The recent losses incurred by growers because of glutted markets at home, and the unsatisfactory provisions for carrying our tender fruits either to Great Britain or to the United States in a fresh state, certainly bring us face to face with the puzzling question, How can we place our tender fruits in those parts of the world where they are most wanted. The Star answers:

"To do this, the fruit must be cured, either as pulp (partly preserved or dried), for foreign jam houses, or canned or made into good jam. This means the establishing of canning factories and jam houses in all our fruit belts. Then the fruit could be shipped anywhere and find a ready market. English people are great consumers of jams preserved so that they can be used as a jelly. They do not relish our canned goods, but use thick jams extensively as a substitute for butter. There is no reason why Canada should not supply Britain with great quantities of jam which the Englishman prefers to have put up in glass, in fact he will not buy it unless in that way. In the Northwest during the long winters canned fruit is found almost essential to health, and is being used more

and more each year. This means a great market some day and the district that gets in position to supply this want will profit in a marked degree.

In line with the above, and in confirmation of the position taken by the *Star*, we have just now received an urgent inquiry from England for fruit pulp, from Messrs. Rothson & Co., 54 Great Tower street, London, E. C., as follows:

SIR,—We shall be glad to know if you can offer us any Fruit Pulp of any description. We are in a position to handle any quantity, large or small, of all kinds, including Apple Pulp, and if you can make us any shipments we can secure for you a very good price indeed. If you can conveniently do this, we shall ask you to make us a small trial shipment as early as possible, and if you will kindly cable us on receipt hereof what you are in a position to ship, we shall be very pleased to reply by cable, giving you any information that you may require.

In view of the risk attending the export of plums and peaches and pears in cold storage, and the expense involved, it is evident that a great saving would be made by first reducing these fruits to pulp, or jam, and exporting the manufactured product. Not only would there be a great deal less bulk to transport, but the charges would also be reduced, because such goods would carry in ordinary storage. Herein appears to be a good field for co-operative factories among fruit growers, so that the advantages would be retained by them and not given over to a company.

THE BRITISH JAM TRADE.

THE following article from the *Scottish Trader* will give an idea of the extent of the British jam industry, and of the prices paid for fruits used in jam making: "Not for five and twenty years has jam been so dear as it will be for the next twelve months. The soft fruit season has closed, and raspberries made as high as £45 and even £50 a ton. The plum season is in full swing, but values range from £30 to £40 a ton, so that jam cannot possibly be cheap. The above

quotations refer to jam fruit only. Of course, dessert raspberries made considerably higher prices. We saw quantities sold at 9d. and 1s. a pound first hand, these prices being equal to £84 and £112 a ton respectively. As to the plums, the Victoria, Pond's Seedling and Prince of Wales plums are making from 7s. to 10s. a half bushel. The former is largely used by jam makers, being, in fact, one of their stock plums. At from £30 to £35 there are buyers open to purchase hundreds of tons of plums. These fruits, especially the imported samples, are more plentiful than raspberries, currants, or strawberries were. The jam manufacturer is depending upon the plum to replenish his stocks, though the latter will at the end of the stone fruit season be far under the average of previous years. The bulk of the plums on sale at the present time come from Holland, Germany and France. Though it is stated in the official statistics that American plums are on the market here, they are never used for jam, being far too expensive. Continental plums are plentiful. About 100,000 packages of these fruits have been unshipped in English ports during the past six days. Out of this quantity over 80,000 packages full had been grown in Germany. This season German shippers are monopolizing the plum trade of the British markets. Quite 75 per cent. of the plum jam that will be sold as new season's jam this year will have been made from German plums. Of course, these increased foreign fruit shipments are due to the failure of the British fruit crop. If German plums were not used in English jam we should get little of that popular preserve this season. As it is, despite the seemingly large arrivals referred to, English jam will be unusually dear. It is unfortunate that jam makers have not only had to face a great shortage of fruit and high prices, but that sugar has also increased in value."

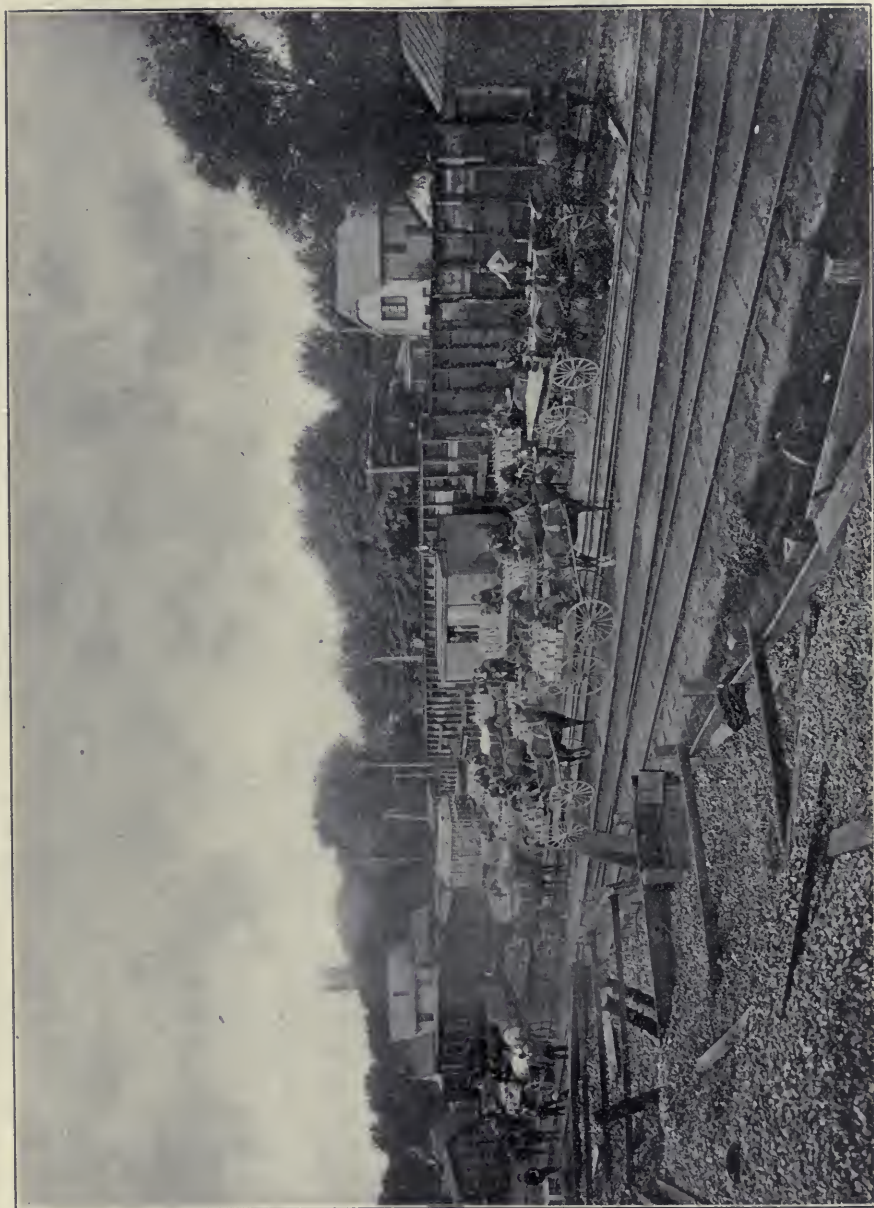


FIG. 2672. LOADING FRUIT AT ST. CATHARINES.

FREE SUGAR.

THE Sun, in discussing the same question of reducing our fruits to jams, jellies, etc., points out that Canadians are handicapped in this enterprise by the tariff, as follows:

The offering of a car load of plums at about one per cent per basket above the cost of the baskets should suggest to the fruit growers of this province the need of relief from oppressive conditions. If it were not for the tariff, that enhances the price of sugar and glassware, Canadian jams, jellies and preserved fruits would find a market wide enough to make a demand for all the products of our orchards and fruit farms. Although at great disadvantages with regard to the growing fruit, the British canners and jam producers are successfully holding markets in all parts of the world. Canadians are handicapped in competing for outside markets by a duty on sugar which amounts to about one-third of the cost. This makes it impossible for a fruit canning enterprise to succeed in any market open to competition. If the sugar duty were not enough, a duty of 30 per cent. on glass jars is a certain prohibition on the most attractive method of preserving for the market.

This journal has no leanings to party politics, but, if free sugar would foster the interests of fruit growers, we hope the tariff may speedily be readjusted so as to facilitate the development of such an important industry.

OUR CANNING INDUSTRIES.

THE canning factories seem to have revived in a wonderful manner of late, and are proving a great boon to the fruit growers situated near them. I think, said Mr. E. D. Smith, M. P., of Winona, that factories for putting up our surplus fruit are needed in every fruit district, and fruit growers would find it a good investment to put their money into them. Plums, especially, which this year were a drug in our markets, should be made up into jam.

At St. Catharines the other day our president, Mr. W. H. Bunting, introduced us to several growers who were considering the question of putting up their Kieffer pears for export. "I prefer," said Mr. Griffis, "to sell mine to the factories and save the trouble and the risk of exporting them. I received one cent and a half a pound for all

my peaches, and I am offered one cent a pound for my Kieffers. Now I don't think that a bad price when you consider that you have no expense for baskets, freight or commission."

THE GRAPE HARVEST.

ABOUT St. Catharines the grapes are turning out very well, and Mr. Bunting told us that everyone was trying to get through shipping as soon after the middle of October as possible. Messrs. Titterington Bros. and Mr. McIntee were loading cars for the Northwest, and splendid refrigerators they were—cars such as fruit men ought always to have, but alas, seldom get, aside from centres where other railways are in close competition.

"We will ship out from St. Catharines this season," said Mr. Bunting, "150 carloads of grapes, largely Concords, and of these at least 50 cars go to the Northwest."

"These six and two-third quart baskets are not the thing," said Mr. Robert Thompson. "They do not pack well together, and if you put peaches in them they go for half baskets, i. e., half of the twelve-quart basket."

"How many baskets of grapes do you put in a car?" we inquired.

"Owing to the minimum for car lots of fruit being fixed at 20,000 lbs., we are obliged to put in from 2,300 to 2,400 9-lb. grape baskets to make a full car load. This makes it frequently necessary to pile the baskets from 10 to 12 high in the car, which is considerably higher than is conducive to the best carriage of the fruit. If the minimum could be reduced to 16,000 lbs. for fresh fruits, and suitable cars furnished in large enough numbers, it would be a great boon to the fruit industry of this district."

THE BENEFIT OF SPRAYING APPLE ORCHARDS.

THE experimental spraying operations carried on during the spring and summer by the Fruit Division, Ottawa, in

the Woodstock and Ingersoll districts have been satisfactory beyond expectations. Mr. W. A. McKinnon, chief of the fruit division, says that they furnish the best illustration of the necessity of spraying that he has ever seen. Aside from the opportunities for comparison between sprayed and unsprayed orchards, chance has provided some remarkable proofs of the value of the operations. In every case where a single tree or part of a tree in one of the sprayed orchards was neglected the fruit on such tree or part of tree is to-day hardly worth the trouble of picking, while on all sprayed portions scab is hardly to be found.

BRITISH COLUMBIA FRUIT.

FRUIT growers in Eastern Canada will have to bestir themselves if they wish to hold their share of the trade with Manitoba and the Territories. British Columbia is a formidable competitor, and only the best quality of fruit put up in proper packages will be found salable in Winnipeg and other western cities and towns.

In a recent issue the *Victoria Colonist* says: "Still another carload of fruit is being shipped to-day by Messrs. Stewart & Co., Yates street, to Winnipeg, consisting entirely of Victoria and vicinity products. The car is made up of packages of apples, pears, plums and prunes of a quality that need fear no competition in the east. Messrs. Stewart & Co. have already on hand the preparation of two and probably three more carloads to be dispatched next week to the same destination."

WHITE PEACHES.

THE white peaches are the favorites in Great Britain, and were if not for the fame of the Early Crawford would no doubt be so in Ontario. The Champion, Steven's Rarieripe and Carlisle are three good varie-

ties of this type. The latter commends itself in our experimental plot at Maplehurst this season. It is large, of delicate tender flesh, and good flavor. In season it is latest of all, in use for the table until the end of October.

REPORTS OF EXPERIMENTAL SHIPMENTS OF PEARS AND PEACHES.

THE editor of this journal has forwarded to Glasgow three carloads of Bartlett pears during the month of September. Nearly all of these were at his own risk and expense, although three or four other growers put in some small parcels. They were packed without wrapping, in half cases, with excelsior padding, and shipped in refrigerator cars from Grimsby to Montreal. All were perfectly green and hard leaving the shipping point. They were in two grades, A No. 1 averaging about $2\frac{3}{4}$ inches in diameter, and No. 1 averaging about $2\frac{1}{2}$ inches.

CAR NO. 1.

This carload of 820 packages was made up as follows: L. Woolverton, 567 packages; E. J. Woolverton, 30; C. E. Woolverton, 50; S. M. Culp, 173. The thermograph showed them to have been carried from Grimsby to Montreal at a temperature of about 53 degrees F., and the inspectors who examined them at Montreal, before loading them on the *Lakonia*, reported them in good condition; but, a cable on arrival at Glasgow reported a "large quantity overripe and unsalable owing to too high temperature on shipboard."

The following is a detailed account of 565 packages marked L. W.:

Glasgow, 28th Sept., 1903.

9 half boxes (20 lbs. of fruit), No. 1 Boussock, at \$1.77.

220 half boxes (20 lbs. of fruit), No. 1 Bartlett, at \$1.58.

15 half boxes (20 lbs. of fruit), No. 1 Bartlett, at \$1.46.

38 half boxes (20 lbs. of fruit), No. 1 Bartlett, at 97 cents.

3 half boxes (20 lbs. of fruit), No. 1 Bartlett, at 30 cents.

30 half boxes (20 lbs. of fruit), No. 1 Bartlett, unsalable.

152 half boxes (20 lbs. of fruit), A No. 1 Bartlett, at \$1.95.

30 half boxes (20 lbs. of fruit), A No. 1, at \$1.71.

5 half boxes (20 lbs. of fruit), A No. 1, at \$1.34.

1 half box (20 lbs. of fruit), A No. 1, at 55 cents.

26 half boxes (20 lbs. of fruit), unsalable.

9 boxes (40 lbs. of fruit), A No. 1, at \$3.47.

2 boxes (40 lbs. of fruit), A No. 1, at \$2.01.

15 half boxes Champion peaches, unsalable.

Notwithstanding the loss of 71 cases, which arrived overripe and had to be thrown out, the net proceeds of the 567 packages was \$555.18, or about \$1.00 each.

The account sales of the other lots were passed on to the other shippers. Suffice it to say, they netted about \$1.50 a package.

This first experimental shipment of this season simply proves the excellent possibilities before us if we could depend upon the ocean storage, and it does seem unfortunate that with all the subsidies granted these lines for cold storage, we fruit growers cannot have our peaches, pears and plums carried at a proper temperature, and a golden opportunity to get high prices for these tender fruits, lost, which should if made practicable, put new life and spirit into the hearts of Ontario fruit growers.

WARM INSTEAD OF COLD STORAGE.

Our consignee, in writing, says: "A per-

centage of these pears arrived here in a very bad condition, and this, I understand, was due directly to the temperature having been kept too high while on board the steamer. It appears that the refrigerator chambers were packed full of fruit, and therefore the cases in the centre of the chamber were blocked in from the air, and it was impossible for the engineer to keep the temperature down sufficiently. The pears were carried at a temperature of 44 to 46 degrees, and I have asked Mr. Brown, the government inspector here, to write you, as he is making a full report thereon to the government. Some of the cases of pears were in perfect order, and sold remarkably well, but others again were in ripe and overripe condition. Had the fruit been all in green condition, the A No. 1 would have realized \$2.00 and the No. 1 \$1.50, but as explained above these ripe and overripe had to be allowed for. The fifteen boxes of peaches were just a mass of decayed fruit and could not be offered for sale at all. The pears would have looked better had they been wrapped in paper. There were also some California plums in the same chamber which also landed in bad condition. They should not have put such a great quantity of fruit in one chamber, and should have left air passages so that the temperature could have been kept at a right degree."

THE GREENING IN PERTH COUNTY.

THE finest samples of the Rhode Island Greening apple that I ever saw (says Mr. T. H. Race, of Mitchell) were brought in to me a few days ago by a farmer of Hibbert township, county of Perth. The farmer, Mr. John Kemp, has five trees of the same variety in an orchard of perhaps two acres, which has not been broken up for years. The apples brought to me were off one of the five trees; but were so much larger and cleaner than the fruit off the other four that some per-

sons had persuaded Mr. Kemp that they were not the same variety. They come like this every year, Mr. Kemp said, though never quite so fine as this season. I inquired for a cause, but was told that the trees got the same care, and that was very little except some pruning out. Mr. Kemp finally told me that he raised a large flock of turkeys every year, and that all through the season, and every season, they roosted in

this particular Greening tree. That partly explains it, I said; that at least explains the size of the apples, but does it explain the absence of worms? Why should the very superior apples of the turkey fertilized tree be exempt from worms, while the fruit on the other four trees was badly affected? The case at all events shows the benefit of top dressing on sod that is never broken up.

AT THE WESTERN FAIR, LONDON

BY T. H. RACE, MITCHELL.

THE Horticulturist has made a number of well-merited references to the fruit display at the Toronto Industrial exhibition. Let me say a few words about the exhibit at London. Everybody knows that the arrangement in the horticultural building at London is much better than that at Toronto, and it is easier to make the display attractive. This year, after the judging was done and everything was put into order by the committee in charge, the effect in the building was very pretty. The fruit itself, though not so plentiful as at Toronto, was superior to it in quality, and being a week later had a little more color. As an object lesson and a means of education the display at the Western is decidedly in advance of that at the Industrial. The low fruit tables running crossways of the hall shows the fruit to better advantage, and is easier of access to those who wish to handle it and ask questions about it than the higher tables with guard railings used at Toronto. And when these tables are decorated with flowers and plants, tastefully placed among the fruit, and the sides of the building on either ends of the fruit tables all covered

with a handsome floral display, the effect is very pleasing and attracts great numbers of people.

The London Horticultural Society is deserving of great praise for the part they take in making the display at the horticultural hall a thing of beauty and a joy to everybody who goes in to see it. They occupy a central position in the hall, with the apple tables to the south and the finer fruits to the north of their exhibit. Their display, contributed by the members of the society, is shown on a large pedestal, crowned with some of the larger plants and covered on all its sides and surroundings with cut flowers and annuals grown from seed distributed by the society. For this enterprising and magnificent display much credit is due to Mr. Gammage, the well-known London florist, to Dr. Bethune, to several of the ladies, and to Mr. C. J. Fox, who is generally in charge. Taken altogether, the horticultural hall was one of the most attractive departments of the Western Fair this year, and the artistic arrangement of fruit and flowers together was an object lesson of real value.

AN ENGLISH NURSERY

BY THE EDITOR.

ON Whit Monday, June 1st, we took a day out of the great city of London to visit the nurseries belonging to Mr. Cheal, whose visit to Maplehurst last September was so welcome.

His home is situated about two miles from Crawley, where we lunched in the old George Hotel, at which royalty so often lunched in coaching days—a half-way house between London and Brighton.

Mr. Cheal's home is a lovely old-fashioned house, half hidden in ivy, clematis, akebia and other climbing vines, and surrounded by beautiful hedges. On one side of the beautifully cut lawn was a rockery well considered a work of art, with rambling walks amid trees and rocks and pools of water, approached over an artistic rustic bridge. Among the rocks was planted a collection of hardy plants, suitable to the conditions and giving one the impression of living in the midst of nature's garden. "So popular has this style of work become, said Mr. Cheal, that some men are now making rock gardening a specialty.

The English methods of cultivation are very different from those of our Canadian nurserymen, who cultivate their whole plantation by means of horse labor. Mr. Cheal's nursery is a succession of gardens, separated by lofty walls of hawthorn and hornbeam hedges; and each of these gardens, with its wealth of evergreens, fruit trees, flowering shrubs, hardy perennials, etc., these acres of nursery stock—all are cultivated by hand! "Such a method would ruin Canadian nurserymen," we said. "Our people do nearly every-

thing by horse work, and as little as possible by human labor."

"Land with us is too valuable to plant at such distances as you do, and labor is much lower priced," said Mr. Cheal. "We pay only from \$4 to \$5 a week for labor."

Well, of course, here is a key to the situation; yet we believe the time has come when English farmers and nurserymen should take some lessons from us if they would continue to prosper.

The greater part of Mr. Cheal's business is in connection with large contracts for the designing of parks, for which he supplies the stock and carries out the work; still the firm does quite a business in fruit trees. They make quite a specialty of growing apple trees on English Paradise stock, claiming that these would be profitable if planted in a wholesale way.

The varieties of apples cultivated differ wholly from those grown with us. Cox Orange Pippin heads the list, and is followed by such varieties as Pearmain, King of the Pippins, Queen, Lord Derby, Bismarck, and many others; while such names as Baldwin, Spy, Greening, King of Tompkins, Snow, etc., are not to be found.

Evidently the conditions are so different from ours that different varieties are needed—and it would be vain to expect much satisfaction in Ontario with English varieties as in England with those which originate in Canada.

The hedges at Mr. Cheal's nursery are exceptionally fine, but so high and large that the work of cutting must be enormous. "We are obliged to keep them," said he, "for pro-

tection against the winds." Perhaps; but in our humble opinion, the cost of keeping these numerous immense hedges in good form, would pay for all the injury from the wind and leave a handsome margin in the bank.

The prettiest of the hedges we thought was the Hornbeam, presenting as it did such a pretty light green color, and bearing the shears wonderfully well.

For ornament certainly give us these beautiful English hedges—nothing could be a greater decoration to the country roads and lanes; but it is the number of them that surprises us and leads us to wonder if our British friends are, after all, only "playing at farming" when they divide up their farms into such tiny divisions, with hedges so numerous.



Scene at a Show of the Society in 1849, at Chiswick.

FIG 2673.

THE ROYAL HORTICULTURAL SOCIETY

IN view of our reference to the Temple show, of the Royal Horticultural Society, of London, the following extracts from a history of that society, which recently appeared in the *Journal of Horticulture*, may not be out of place:

The present period is an interesting one in the history of the Royal Horticultural Society. It is a period of great prosperity and of wonderful activity. The society's influence is visibly penetrating the provinces and parishes of the three sister king-



FIG. 2674. THOMAS ANDREW KNIGHT.

doms, and we have been surprised and pleased on many occasions recently to discover Fellows of the Royal Horticultural Society in places whose positions could not in the least have brought them into direct touch with the society or its management.

The Royal Horticultural Society was established in 1804, and measures were adopted in the spring of the present year whereby the Centenary in 1904 may be celebrated in a manner worthy of the Mother Society of English Horticulture. How satisfactory and commendable this proposal to build in London a great hall and offices for the society was, has been overwhelmingly demonstrated at the special general meeting held on March 21.

The society in these later days is indebted for its popularity, its advertisement, and its success, almost entirely to the frequent exhibitions and annual conferences, and secondly to the issue of an invaluable journal of the transactions of the society, and the secretarial vigilance. In the early days of the Royal Horticultural Society, before the exhibitions had become a feature of the yearly program, the society's greatest work and usefulness centralised at and radiated

from the experimental garden at Chiswick. This has now altered. "All is change, woe or weal." When, in a few years, a powerful and consolidated fellowship have accomplished the magnificent task now lying before them, a new garden, fruitful in possibilities, will be assured, from the best of all reasons, that it is a necessity.

The most valuable worker and chief instigator in the formation of the society was Thomas Andrew Knight, F. R. S., whose name is associated with the horticultural society during a long course of years, and ever regarded, says Sir Trevor Lawrence, "with the highest honor by all connected with it." He then proceeds: "Mr. Knight, whose name and virtues are commemorated by the Knightian Medal of the Society, had devoted much attention to scientific horticulture and vegetable physiology, on which subjects he had communicated several papers to the Royal Society. He lived in Herefordshire, in the midst of a cider and perry country, and had been struck by the unskilful and unscientific management of the surrounding orchards. The idea of founding a society to bring together British horticulturists occurred to him in 1804. He put himself into communication with Sir Joseph Banks, P. R. S.,* and others; the result being that on March 7, 1804, the new society was founded. Its objects were defined to be "to collect information respecting the culture and treatment of all plants and trees, as well culinary as ornamental; to foster and encourage every branch of horticulture and all the arts connected with it, and to give premiums for improvements in horticulture whenever it shall be judged expedient to do so."

* * * * *

In 1809 a royal charter of incorporation

* Sir Joseph Banks, Bart., was President of the Royal Society for forty-one years. He died in 1820. A new edition of his Journals, during his voyage with Captain Cook, has lately been published, edited by Sir Joseph Hooker.

was granted to the society whose object is therein briefly described to be "the improvement of horticulture in all its branches, ornamental as well as useful." * * *

In 1811, on the death of the Earl of Dartmouth, the first president, Thomas Andrew Knight, Esq., the founder of the society, was elected president, a post he occupied for twenty-seven years, to the signal advantage of the society and of horticulture generally.

* * * * *

In 1818 and the following years an experimental garden was established at Kensington, with a nursery at Ealing; and permanent offices were acquired by the purchase of No. 1 Regent street, at a cost of £4,200. About this time, the annual subscription, which had originally been £2 2s., was raised to £3 3s., a rise which seemed rather to encourage than to cheque elections, 845 new fellows having joined the society in 1891-21. In 1822 the gardens of the society were moved from Kensington and Ealing to Chiswick, where a thirty years' lease of 33 acres had been obtained from the Duke of Devonshire, the lease being renewed in 1852 for a like period. The gardens of the society have continued at Chis-

wick ever since, but their area has been reduced from 33 acres to 12.

A valuable feature of the society's work—one which has had a great and enduring influence on British horticulture—may well be referred to here. As early as 1818 it was recognized that, funds permitting, a horticultural society could not do better than take steps to obtain from countries beyond the borders of Europe valuable and interesting trees, shrubs, plants and seeds. The earliest arrivals came from China and from India. In this way many valuable ornamental plants were introduced into Great Britain, such as azaleas, peonies, roses, camellias, chrysanthemums, etc. One of Mr. John Reeve's introductions from China was the lovely *Wisteria sinensis*, which reached England in 1818. The large tree of this climber at Chiswick is probably a relic of the original introduction. The success of these early efforts encouraged the society to send out collectors at its own cost. This they did with such success that, to quote Mr. Andrew Murray, "the results have affected the appearance of all England. Nowhere can a day's ride now be taken where the landscape is not beautified by some of the introductions of the Horticultural Society."



FIG. 2675. HORTICULTURAL BUILDING, ST. LOUIS.

THE WONDERS OF THE NIAGARA DISTRICT.

BY T. H. RACE, MITCHELL.

ONE of the most interesting portions of the Niagara district is Pelham township. The great and fertile fruit belt of the Niagara district is that stretch of land from Hamilton to the Niagara River lying between the lake and the mountain. Up over the mountain on the table-land vineyards and peach orchards are the exception rather than the rule. The surface, for the most part, is too hard a clay for small fruits, and general farming—and some very poor farming—is the rule. Pelham township, however, lying right upon the table-land, is an exception to this rule. Pelham township resembles an extensive mound of rich sandy loam, with a centre ridge of water-washed gravel, as if dropped from some stranded iceberg. From the east, west, north and south slopes of this township the most delightful views of the distant lakes and landscapes can be had. The soil, besides being warm and easily worked, is wonderfully fertile, and every variety of timber from oak to walnut was found upon it, and still exists in its unbroken forest lands. Here small fruits grow in great abundance; one man close by Font-hill, Mr. A. Railton, devoting his whole hundred acres to berries of one kind and another, from which he has realized an easy fortune. Among the farmers of this township there are eighty telephones in use, an evidence of advancement not equalled anywhere in the Dominion.

But it is as the great nursery district of Canada that Pelham township has become especially famous. On the east and southern slopes the Morris & Wellington nurseries, the largest in Canada, are situated. These nurseries cover in all about eight hundred acres, and nowhere in the world are young trees brought more rapidly to perfection with a less percentage of culls.

This, of course, is owing to the most favorable conditions of soil and climate. Frost-bite and black heart are diseases unknown among trees grown in Pelham township. The rapid growth of the ornamental department of these nursery grounds is indication of the great advancement made in later years in home ornamentation, park and lawn planting. A lesson in this department is also learned of the changing tastes, and greater knowledge, perhaps, of arbor culture. The rowanwood, or mountain ash, so well known in song and story in the days of yore, has no longer a place in the nursery row. The same may be said of the horse chestnut. These have given way to the more popular colored birches, maples, and evergreens. To me the rose department of these nurseries was also of special interest. Morris & Wellington are easily the largest growers of this choice of flowers in Canada, and when I visited their rose grounds, comprising several acres, there were still thousands of roses in bloom, though the season was well on into August.

On the western slopes of Pelham township are situated the Brown Brothers' nurseries, the second largest in Canada. Just on the west of the slope, to the west, stands the handsome nursery home occupied by the manager, Mr. E. Morris. From this home can be seen both lakes, to the north and south, with a commanding view also of the landscape to the west stretching as far as the eye can reach. This matter may not be of actual value to the fruit grower; but it is of interest to all of us to know that we have in our country a district so especially adapted to nursery growing and a matter of pride to them that we have a district of so many natural charms, and so advanced in all the developments of our higher civilization.

FRENCH METHOD OF PACKING AND SHIPPING PEARS

BY

W. A. MCKINNON, B. A.

CHIEF OF FRUIT DEPT., OTTAWA.



FIG. 2676. FRUIT PACKING IN FRANCE.

TO those who are accustomed to think of the French as a nation of pleasure seekers it is somewhat of a revelation to mingle for a time among the working classes in the city of Paris and its immediate neighborhood. The discovery is soon made that while Paris is filled with strangers seeking only pleasure, it is in reality a busy hive of ceaseless workers. It was the writer's privilege to become acquainted with the heads of one of the largest fruit houses in France, and to see exemplified the wonderful concentration of business management which enables one firm to place the products of a thousand orchards side by side, in the same market, and packed with absolute uniformity.

At the head office of Champagne Freres orders are received from British and Continental markets for all grades and varieties of pears, plums, dates and other fruits. Daily reports coming in from their agents in all parts of France enable them to give shipping orders in accordance with the supply

and demand, so that one mind controls and directs the entire market operations of the firm.

In every section of the country a representative of the firm visits daily five or six packing houses located in his district. Sectional maps, which are kept at the head office, indicate to the management exactly where each of these traveling foremen is to be found at any particular moment, and what sort of fruit is being "operated" in the district in question. The limits of these districts are definitely fixed, and the foreman is not authorized to buy a single package of fruit beyond these limits, which the experience of the firm has enabled them to fix with accuracy, on the basis of profit. It is true there as in Canada that choice fruit may be produced in a certain village, while at another, five miles away, the same varieties are poor and unprofitable and quite other fruits are the staple. The foremen report daily by wire what quantities of fruit of each variety and grade are available for imme-



FIG. 2677. FRENCH FRUIT PA



FIG. 2678. READY FOR SHIPMENT.

diate shipment. The manager at the head office, who has the orders before him, and also accurate information as to the resources for the day, is thus placed in a position to direct shipments in accordance with the available supply.

A visit to one of the packing houses in a village a few miles distant from Paris proved exceedingly interesting and entertaining. We were first shown the process of grading and packing the pears as they arrived from the grower in large straw-lined hampers. Women are employed to sort the pears according to size, at the same time rejecting every defective specimen. A few days' practice with measuring rings enables the graders to distinguish accurately the diameter of the fruit to within a quarter of an inch. In practice, the measuring rings are seldom or never used after the first week. The pears when graded are placed on a canvas covered bench, each size by itself. Here a different set of workers is engaged in packing the fruit into slatted crates, as shown in the illustration, Fig. 2676. Each packer handles only one size of fruit, and every crate put up by her must contain the same number of specimens and must be well filled. The operator stands in the angle formed by the bench and the stand on which

her crate is placed, and faces the latter. The crate is lined on all four sides with paper, which hangs over the sides and the back, where the lid, with its hinges of cord, hangs straight down. The first operation is to place a layer of excelsior in the bottom of the crate; this is covered with a sheet of newspaper, and the crate is ready for its first layer of fruit, which is placed evenly, with the stems all one way, as shown in Fig. 2677. Over the fruit a sheet of newspaper is placed, followed by a fairly thick mat of excelsior and another newspaper. A second layer of fruit is followed by newspaper and excelsior, after which the overhanging newspapers are folded across the package, which is then handed to a man to be closed.

It requires considerable muscle to draw the cover tightly over the bulging excelsior and fasten it securely.

The next operation is the marking, for which this firm employs a code something like that of telegraphy. For example, three dots indicate "No. 1 Bartlett"; two dots, "No. 2"; three dashes, "No. 1 Duchess," and so on; the color is varied to show the



FIG. 2679. PEASANT FRUIT GROWERS.

section from which the fruit comes. Fig. 2678 shows 'a cartload' of fruit ready to be taken to the station for shipment.

Fruit intended for sale within the week is picked and packed while still green and hard. It is not shipped in cold storage, and has time for ripening during the voyage and before it is finally purchased by the consumer.

The crates cost approximately 30 cents each and are returnable. This package is rather expensive, in view of the fact that a crate is said to stand only five or six journeys to England, and the cost of returning it is considerable.

After seeing the product and the method of handling it, we were anxious to see the producers, and a short walk brought us to the middle of a large pear orchard, where we found a peasant and his wife engaged in cultivating the trees. The illustration, Fig. 2679, shows not only the workers and their costumes, but also the only implement which many growers use for cultivating the soil—the short-handled hoe. Of course it is true that the larger farmers use horses in their operations, but thousands of acres in France are tilled by hand. Many pear trees are grown in the open as in Canada, but wall culture is very popular in some sections. The pears are trained up against a wall, the top of which is thatched so as to shed the rain. The peasants know exactly how many pears each tree is carrying for them, and watch with careful eye the development of each individual fruit, noting with alarm the progress of scab or rot. Spraying is known, but not thoroughly understood, and seldom efficiently practised by the smaller owners. Thinning is done wherever necessary, the object aimed at being to produce the largest and finest fruit. Champagne Freres, and other firms engaged in similar business, pay a very much higher price for large pears than they will for medium-sized fruit; small



FIG. 2680. HOUSE USED FOR PEAR PACKING.

and defective pears they will not buy at any price, and growers have learned that it pays them well to produce only the article which brings a high price.

At the right of Fig. 2678 will be seen a typical peasant proprietor and client of the firm. Fig. 2680 shows on the left a peasant proprietor in another section of France, and an unoccupied house, on the floor of which he had his pears spread out in layers, the large ones by themselves. The central figure is the representative of Champagne Freres in that district, who had just completed an inspection of the fruit and a bargain for its purchase.

The chief lessons we can learn from a study of methods in the exporting of pears from France are, first, that it pays growers and shippers alike to take pains in the growing of the fruit, so as to produce shipments which contain no undersized or defective fruit; that it pays all concerned to have the fruit rigidly graded, and to place upon the market substantial packages of fruit, uniform in size, appearance and quality; and further, that the careful packing of choice fruit, even though it seem expensive, is really the most economical way in which to handle it.

NEW ONTARIO, FROM A FRUIT GROWERS' POINT OF VIEW.

BY

HAROLD JONES, MAITLAND, ONTARIO.

ON September 21st thirty-eight members of the Canadian Press Association left Toronto on a tour of inspection to that wonderful country lying north of North Bay, known as New Ontario. We arrived at North Bay in the evening after a very interesting trip through the hills and lakes of the Muskoka region. The next morning I went directly north for a distance of 28 miles, on the government railroad now being constructed. Beyond the first two or three miles north of North Bay the road passes through an unbroken forest of spruce, balsam, cedar, pine, birch, maple and a little basswood. On this railway, at Trout Lake, Sturgeon River, and on the south side of Moose Lake, wild plums grow successfully, also pin-cherries, choke cherries, raspberries, blueberries, gooseberries, elderberries, strawberries and high bush cranberries. The land varies greatly from rocky ridges (granite) to sand, gravelly loams and clay loams. The most of this section, as far as soil conditions are concerned, will undoubtedly be adapted to fruit growing when the forest is cleared away. This section of the country is at a high elevation. Sturgeon Lake, about 25 miles north of North Bay, is 1,200 feet above sea level and 600 feet above North Bay. I understand that portions of this forest I have just mentioned are reserved by the government as a timber reserve, and so will not be open to settlement for some time.

On September 22nd I took the train to Mattawa, a point on the Ottawa river east of North Bay. From there I went by rail 39 miles up the banks of the Ottawa to the foot of Lake Temiskaming, from which point I went to New Liskeard, a distance of

85 miles, on one of the Lumsden Company's steamers. The banks of the Ottawa and of Lake Temiskaming are abrupt cliffs, mostly of a rocky formation, covered with soft maple, silver birch, poplar, balsam, spruce and pine, with some burr oak. These cliffs are rich in scenic grandeur, but very little, if any, fit for cultivation.

At Haileybury, 6 miles south of New Liskeard, the rocky formation abruptly stops, and we enter into the great clay belt of the north, which is said to be 600 miles long, of about 200 miles wide and of unknown depth.

I stopped over night at New Liskeard, a thriving little town of 1,000 or 1,200 inhabitants, who have great expectations. The next morning, September 24th, I drove out on the East road, along the north end of the lake, for a distance of six miles. I found the land here all clay, with the exception of two limestone ridges.

My first stop was at S. S. Ritchie's, five miles east of New Liskeard, whose land is on the banks of the lake. This farm is a rather high elevation above the lake, and upon examining the soil in a cellar that had been dug for a dwelling, I found it sandy for a few inches, with a clay to gravelly subsoil, which would give good natural drainage. At this place I found a Hyslop crab, and what was evidently a Duchess about four years old, in a healthy thriving condition. The natural forest on this farm is deep rooted, and there was no evidence of root-killing, even in varieties of apples that he had planted that were not hardy in wood and branch in that northern country.

I also visited C. W. Tucker, adjoining Ritchie, with soil conditions similar to those just mentioned. Here I found a Hyslop

crab, a good sized apple of Russian origin, bearing fruit, and Concord and Niagara grapes. Concord was ripe, Niagara green. I also found two native plums of excellent quality, in full bearing.

I returned to New Liskeard for dinner, and after dinner drove towards White river and Tomstown, on what is known as the north road, a distance of 10 or 11 miles. I found here a gently undulating country, all clay, with a thick forest growth of medium sized spruce, balsam and cedar. All along this road the country is thickly settled and some quite large clearings made. Oats, barley and all kinds of vegetables do remarkably well, potatoes especially so. I did not find anyone on this road who had tried raising fruit of any kind, and I saw very little wild fruit. The forest here is shallow-rooted, but as the land becomes cleared and cultivation and drainage aerates the subsoil, fruit trees might possibly make a root system. On the road west from New Liskeard I found soil conditions the same, except the elevation is higher, and drainage can be easily done, as the ravines afford an easy outlet.

Weather conditions seem favorable for the growing of all kinds of crops, and there is no evidence of severe frosts up to this

date, corn being still green in most sections. In the winter months the thermometer falls as low as 40 degrees below zero, with the usual snow fall of about 2½ feet. This country is evidently north of the belt of heavy snowfalls such as they have along the north shore of lakes Superior and Huron.

The Township of Dymond held their fall fair at New Liskeard on September 25th, and it was a complete surprise to see the wonderful exhibit in grains and vegetables. There were over 1,100 people on the grounds in the afternoon, and everybody looked contented and happy and pleased with their conditions.

One great advantage to a settler in this country, who has limited means, is that he has an immediate revenue from the forest that is on his homestead, and he can make his winters profitable by cutting and selling wood and timber that it would be necessary to cut anyway in clearing his land.

The new railway, above mentioned, will reach New Liskeard next summer. This will bring in settlers by hundreds and thousands, for this country is 175 miles south of the latitude of Winnipeg, the climate much more temperate, and the winters not so long as in Manitoba. And New Liskeard will be only 15 or 16 hours by rail from Toronto.

RASPBERRY AND BLACKBERRY MANAGEMENT.

THE ideal treatment for raspberries and blackberries is to pinch them back at intervals during the summer and thus secure strong, sturdy bushes three and one-half to four feet high, with laterals one to one and one-half feet long, rather than to practice severe heading back after the plants have become long and "leggy." If, however, as is frequently the case, even in the best managed gardens, the plants are at this season making vigorous growth which may not mature, they should at once be cut back to the desired height and the canes will harden

before cold weather. Many prefer to cut back the canes in the spring. Thinning the canes, which should always be practiced, may be done at any time during the season. In general one-half or more of the young canes which appear should be cut out.

Blackberries and raspberry bushes may be transplanted in the fall, but better results are usually obtained from spring planting. Currants, on the other hand, have given rather better results from fall setting.—*Maine Experiment Station.*

WILLIAM E. SAUNDERS

SECRETARY OF THE ENTOMOLOGICAL SOCIETY OF ONTARIO.



FIG. 2681. WILLIAM E. SAUNDERS.

PROMINENT among Canadian naturalists is Mr. W. E. Saunders, of London, Ont., who has been secretary of the Ontario Entomological Society since the year 1887.

His father, Dr. Wm. Saunders, director of the experimental farms of the Dominion, has always been devoted to the study of the natural sciences, and hence the son's attention was in early years directed to similar pursuits, his interest in them being maintained by the making of collections in the different departments. Geology, botany, entomology and ornithology all in turn provide object lessons for study, training his mind to habits of close observation and filling the leisure of later years with delightful employment.

After a few years of miscellaneous col-

lecting Mr. Saunders turned his attention more exclusively to ornithology, and as soon as the use of a gun was permitted he commenced a scientifically arranged collection of our native birds, showing male and female in summer and winter **plumage**, with any variations from the types; also the nests and eggs of each species. Year by year the collection is added to, until now it numbers over 1,000 specimens. Mr. Saunders' birds are his intimate friends, and whether in his house or on the public platform his "Bird Talks," illustrated with specimens, show to his audience that he speaks of what he has learned by personal experience in the fields and woods. His enthusiasm for this study is such that he counts it no hardship to walk miles into the country in time to hear some favorite songster greet the dawn. He has also been known to spend a night in the woods in the depths of winter, just to see what he missed by spending his nights in bed.

About two years ago Mr. Saunders accompanied his father on an official visit to Sable Island, a place he had long wished to go in order to see the only known breeding place of the "Ipswich" sparrow. The impressions of this trip were given to the public in an article in one of our local papers, which has since been adapted for some of our scientific magazines. Mr. Saunders was able also to enrich his collection by several specimens of the rare sparrow, as well as some other beautiful birds which have their habitat on that interesting island.

Although Mr. Saunders is kept fully employed in looking after his business interests, he finds a change of work sufficient to afford him the rest he needs; hence, he has

employed his leisure time in many pursuits, and while ornithology may be called his principal "hobby," he has gone rather extensively into gardening and horticulture generally—extensively, considering the size of his lot on Central avenue, but the amount of fruit and flowers there produced is a surprise and pleasure to all his summer visitors. His well-known love for these pursuits and his knowledge of horticulture generally has occasioned his recent election to the chairmanship of the committee who have in charge the care of the street trees in London.

Mr. Saunders received his education principally in London, though two or three years were spent in boys' colleges else-

where. As it was considered best for him to enter the drug business so long conducted by his father, he was sent for two years to the Philadelphia College of Pharmacy, where he graduated with the highest honors. Soon after his return to London he was taken into partnership with his father, but on the latter being appointed Director of the Experimental Farms of the Dominion, Mr. Saunders retired from the retail business and entered into the wholesale exclusively.

On the establishment of the Western University he was appointed to the chair of Chemistry, which he held until the claims of his own business forced him to relinquish the position.—*Canadian Entomologist*.

USEFULNESS OF SPARROWS

J UDD (U. S. Biol. Survey) in Bul. 15 reports upon results of observations upon the feeding habits of the various sparrows found in the United States, as studied both in field work and by examination of stomach contents. The result was unfavorable to the English sparrow, because of his grain-eating habits, which more than counterbalance all his usefulness in eating insects or weed seeds. In the stomachs of 82 English sparrows, for example, insects constituted only 2 per cent. and seeds 98 per cent. of the food; while of the entire food for the year it was found that grain constituted 74 per cent.!

But, aside from this foreigner, our sparrows are most useful in destroying weed seeds, such as rag weed, pigeon grass, smartweed, crab grass, lamb's quar-

ter, chickweed, etc. The work is chiefly done in the fall, winter, and early spring; indeed, during this time the seeds of various weeds constitute about three-fourths of their food, if we may judge by the observations made upon no less than twenty specimens of native sparrows. The ragweed is one of the most troublesome weeds on the fruit farm, growing up so late in the season and giving the whole place such an untidy appearance, so that a bird that feeds upon its seeds is surely a friend. From Mr. Judd's observations it is shown that the native sparrows may destroy 90 per cent. of the seeds of the ragweed within two months, and he found that as a rule the weed seeds were cracked, or otherwise injured, so that they cannot germinate when vented from the body.



FIG. 2682. HOME OF M. AUG. DUPUIS, VILLAGE DES AULNAIS, QUE. Photo by F. T. Shutt.

A DRIVE THROUGH THE FRUIT BELT OF THE LOWER ST. LAWRENCE.

BY

W. T. MACOUN,

HORTICULTURIST, CENTRAL EXPERIMENTAL FARM, OTTAWA.

THERE is a district in the Province of Quebec where good fruit is grown which has not often been brought prominently before the readers of the Horticulturist; this may be due partly to the fact that the fruit growers there are more modest than in some other parts of Canada, and partly because they are for the most part French Canadians who do not receive the Horticulturist. The writer refers to that tract of country along the south shore of the St. Lawrence river extending from Levis,

opposite Quebec, through the counties of Levis, Bellechasse, L'Islet, Beauce and Kamouraska, a distance of about one hundred miles, and reaching about latitude 47 degrees 50 minutes.

Although the winters in this part of Canada are very severe, the temperature occasionally falling to 30 degrees below zero, the St. Lawrence river has such a favorable influence that European plums and cherries and other fruits which will not succeed at Ottawa are grown here to perfection, the

flower buds of the plums and cherries coming through nearly every winter uninjured.

Accompanied by Mr. F. T. Shutt, the writer recently had the pleasure of visiting this district and of learning from personal observation what is being done in fruit culture there, and what are the possibilities for the future. Landing at St. Denis wharf from Murray Bay, we drove to St. Denis, a distance of four or five miles, and called on Mr. J. C. Chapais, assistant dairy commissioner, who has done much experimental work in fruit culture. Mr. Chapais received us with great courtesy and afterwards showed us over his orchard and garden, in which were found many things of interest. There was a good crop of apples in the orchard, but we were surprised to find how much later the season was than at Ottawa, a month, as we were informed. Duchess and Fameuse were among the more prominent kinds of apples noticed. The plum crop, which is usually very good, was light with Mr. Chapais this year. Fine strawberries are grown here, and as the season is so much later than at Montreal and Quebec it should be profitable to ship this fruit to those markets. There was a fine vegetable garden kept in good order. Mr. Chapais has also a very interesting collection of ornamental trees and shrubs. We were surprised to find the horse chestnut doing better here than at Ottawa. Mr. Chapais has one of the finest horticultural libraries in Canada, some of his books being valuable French works. There is apparently not very much good fruit land in the immediate vicinity of St. Denis, which is on a point of land with low ground on either side. A drive of twelve miles brought us to Ste. Anne de la Pocatiere, where, although comparatively little is done in raising fruit, it is quite evident good apples and plums can be raised. After a drive of about nine miles we arrived at Villages des Aulnaies, a point to which we had looked forward with great

interest as being the home of that veteran fruit grower, nurseryman, and experimenter, August Dupuis, director of the fruit experiment stations for the Province of Quebec. We were fortunate in finding Mr. Dupuis at home. He received us with great kindness and entertained us well. One would almost fancy himself in France here, as the general character of the village, houses and gardens partakes of that country.

Mr. Dupuis, who has been actively engaged in horticultural work for nearly fifty years, and who has conducted a nursery of fruit trees and ornamental trees and shrubs for about forty years, is very enthusiastic regarding fruit growing along the south shore of the St. Lawrence, particularly regarding the cultivation of the European plum, to which fruit he has paid special attention and has tested a large number of varieties. In 1902 his trees were heavily loaded with fruit, and although last winter was unusually severe (the temperature falling to 30 degrees Fahr. below zero), and spring frosts and summer cracking did much damage, there was a good showing of some varieties. Varieties which are quite unprofitable at Ottawa and only yield a good crop of fruit once in three or four years, succeed admirably here almost every year, and varieties which are regarded as comparatively tender in the best plum districts do well. Two kinds which are giving the best results this year, and which are among the most profitable are Washington and Grand Duke. I saw and tested ripe fruit of these and many other kinds in 1902, grown by Mr. Dupuis. The varieties found to be most profitable and hardiest in fruit bud are: Lombard, Moore's Arctic, Reine Claude, Montmorency, Green Gage, Washington, Grand Duke, and several varieties of damsons. On November 1st, 1902, Mr. Dupuis shipped 50 gallons of his Lombard and Grand Duke plums to England, where they arrived in perfect condition. Some of his Grand Duke



Photo by F. T. Shutt.

FIG. 2683. VISTA IN BOTANIC GARDEN, WITH VIBURNUM HEDGE IN FOREGROUND. GROUNDS OF AÛG. DUPUIS, VILLAGE DES AULNAIS, QUE.

The photo shows an avenue in grounds of Mr. Dupuis, the veteran fruit grower and pioneer in horticulture, being seated on the bench or garden seat in the foreground. Among the other figures are Mr. A. Verreault (in front of the streamer "Horticulture"), superintendent of the grounds, and Mr. W. T. Macoun (next to Mr. Verreault), the writer of this article. The streamers and flags were displayed by Mr. Dupuis in honor of the visit of the officers of the Experimental Farm.

and Golden Drop, which had been kept in a cool and dry building, were packed on November 10th, and on December 1st they were still in good condition and sold well. The plum season begins with Favorite and Mirabelle in the first half of August and ends with Golden Drop and Grand Duke about December 1st.

Mr. Dupuis is now experimenting with a large number of varieties of pears, forty-six of which he imported from France, most of them being on dwarf stocks. A large proportion of these were fruiting this year, and some of them give promise of being especially adapted to the district along the south

shore. Among the most promising were Claude Blanchet and Toukouba, which, although not of the best quality, were of good size and appearance.

Morello cherries are also successfully grown here, and good crops of these are produced nearly every year.

There is a good sized apple orchard here with trees twenty-five or thirty years old, and perhaps more. The hardiest varieties succeed best, but we were surprised to find a Northern Spy tree in fairly vigorous condition which was planted more than twenty years ago. Among the varieties which are most reliable here may be mentioned Tetof-

sky, Yellow Transparent, Red Astrachan, Duchess of Oldenburg, Wealthy, Fameuse and Alexander.

We saw here some of the largest English gooseberries which have ever come under our notice.

Among the ornamental trees and shrubs, of which there are many species, there were some great surprises. As at St. Denis, horse chestnuts were doing well. Cut-leaved birch, planted in 1874, were still fine, healthy trees, probably forty or fifty feet in height. There was an American sweet chestnut tree, planted in 1874, which was in fine condition, and about twenty-five feet high. There were many black locust trees eighteen years old. The smoke tree (*Rhus Cotinus*) was doing well, and the *Althæa* or Rose of Sharon, which kills out root and branch at Ottawa, was found blooming at Village des Aulnaies.

Very intense cultivation is practiced by Mr. Dupuis, and his fruit and ornamental trees are planted close, which gives them greater protection. Some idea of his methods may be obtained from the photo of part of his nursery, taken by Mr. F. T. Shutt, chemist of the Dominion Experimental Farms, and the photo of his house taken at the same time shows the pleasing effect of the trees, shrubs and vines. Mr. Dupuis has also a fine horticultural library containing many rare works.

From a little below Village des Aulnaies, and up the river about 40 miles to Montmagny, which is as far east as we went, there is within a mile or more of the St. Lawrence river many suitable locations for orchards. The soil, which is warm sandy loam, gravelly, or mixed with shale, has good natural drainage, and appears well adapted to fruit growing; yet in all this dis-



FIG. 2684. VIEW IN NURSERY OF AUG. DUPUIS, VILLAGE DES ALNAIS, QUE. Photo by F. T. Shutt

tance, with the exception of the orchards of Mr. Chapais, Mr. Dupuis, and a few others, such as that of Mr. Verreault at St. Jean, Port Joli, which we did not visit, there was nothing that could be called an orchard, although many farmers had a few trees. Plum and cherry trees are dying or dead from

black knot, and apple trees are none too thrifty, whereas in the two orchards mentioned, and no doubt in others which we did not see, black knot is practically a stranger and the trees making thrifty growth, showing what can be done in this district if there is a will to do it.

A PRINCE EDWARD ISLAND FRUIT SHOW.

THE exhibition of fruit this year at the Provincial show, Charlottetown, Prince Edward Island, was by no means the grand feature of previous years. The reason for this is found in the fact that last year was a full year here, his even more than an off year, for besides being off as to the bearing qualities of the trees, the season has been so backward as to leave the small proportion of fruit on them strikingly ungrown and immature. In the early apple class Yellow Transparent showed up splendidly, because other years it had gone out of season in late September. But Duchess of Oldenburg was not nearly so large nor well represented as one would have thought, only 34 entries being made. Alexander and its offspring, Wolf River, were a good exhibit as to number, but even this fruit was not fully grown and but poorly colored. The lists comprehended Alexander (Emperor), Baldwin, Banks, Baxter, Belle Fleur, Ben Davis, Bethel, Blenheim Pippin, Sutton's Beauty, Chenango Strawberry, Rome Beauty, Duchess, Hubbardston Fameuse, Inkerman, Golden Russet, Gravenstein, King, McIntosh Red, Mann, Nonpareil, R. I. Greening, Red Beigheimer, Rid Russet, Ribston Pippin, Stark, St. Lawrence, Wagener, Wealthy, Winter Bough, Wolf River, Yellow Transparent, with all the crabs and a number of plums, pears and grapes. Ontario, Nonsuch and

Rome Beauty failed to fill. Inkerman, one of my own origin, was only represented by one plate, and in several other sections there was but a small exhibit. It is peculiar to me how you secure a half decent show of fruit at your exhibitions in Ontario, held so early in the season. For our part, we believe that we shall have to come to the winter show of fruit for anything like practical results.

From present appearances it doesn't look as if we could grow good Nonpareils here. We can get good Spys, fair Baldwins, Russets, Manns, good Kings, Gravensteins, Ribstons, Starks, Ben Davis, Wealthys, etc. The autumn apples do well—our Alexanders and Wolf Rivers beat the world. Those we



FIG. 2685. PRIZE CLAPP'S FAVORITE.

can grow well we ought to plant extensively, and thus be correct economically, anyhow. Next year there will, if things go right, be a big crop. All that we could export this year would not load a small ship.

The pear show was not too bad for the year. Clapp's Favorite made a splendid section. We can grow this pear grandly and ought to do so extensively. E. Bayfield showed some splendid specimens and carried off the red easily. The portrait of

the young tree in full bearing, from which the prize pears were taken, is given herewith. It will be seen from it that we can get a crop of pears in an off year at least.

In the barreled fruit Senator Ferguson and John Robertson, Inkerman carried off the honors. In the collections there was some superior merit in infinite variety. The Silken Banner Sweepstake remains with

Yours truly,

A. E. BURKE.

SCHOOL YARD IMPROVEMENTS.

FLAG RAISING CEREMONY.

MR. G. R. PATTULLO, the honorary field secretary of the Canadian League, has sent out a circular in which he aims to promote a greater interest in the school properties. The following is an extract from it:

The chief objects of the League, in brief, are: To promote a higher civic spirit and a wider interest in the improvement and beautifying of our cities, towns, villages and rural districts.

The directions in which these objects may be promoted are many and varied, but I shall in this letter mention only one, namely: The improvement and beautifying of rural school properties, including the school-houses, outbuildings, and surrounding grounds. These at present are, for the most part, unattractive, bare, and in many cases, offensive in appearance.

With the hope of improving them, the Canadian League of Civic Improvement is endeavoring to stimulate a more general interest in their school properties on the part

of the Boards of Trustees and the people of the several school sections.

To aid in doing this, it has been suggested that if the parliamentary representative of each constituency were to offer as a prize a Canadian flag (British) to the rural school section that makes the greatest improvements upon its school property during the year 1903, there might be developed a keen but friendly rivalry between the different sections, and thereby great improvements effected, such as planting Boston ivy or other vines about the school buildings, the planting of trees about the grounds, and the making of one or two flower beds.

Apart from this, another good object could be accomplished, namely: The furnishing of school sections with the national flag, which each one of them should have and should fly on all appropriate occasions. The trustees would, of course, supply the flag poles and equipment, and the formal ceremony of flag raising might be an interesting and patriotic event.

POWER SPRAYING

BY

W. A. MCKINNON, B. A.

CHIEF FRUIT DIVISION, OTTAWA.

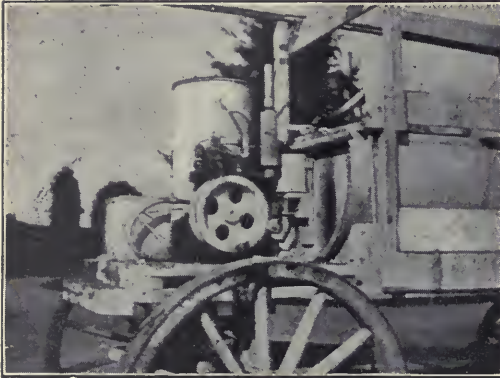


FIG. 2686. GASOLINE POWER SPRAYER USED AT INGERSOLL.

WHSOEVER has watched the trend of events in the fruit growing sections of the United States must be struck with the advent of power spraying as one of the routine operations on the farm. The many difficulties which attend spraying by hand are so well known to

the readers of the Horticulturist that they need not be enumerated. It is also well known that the great bulk of Canada's export fruit comes from small orchards where the difficulties referred to are greatest, and where the inducement to the owner to overcome them is least. With these facts in mind the Minister of Agriculture last spring authorized the carrying out of some experiments by the Fruit Division with a view to demonstrating the advantages of power spraying over the old method. These experiments were highly successful from the operators' point of view. It was found possible to cover twice the acreage in a day that



FIG. 2688. POWER SPRAYER USED ON FARM OF J. C. HARRIS, INGERSOLL, ONT.

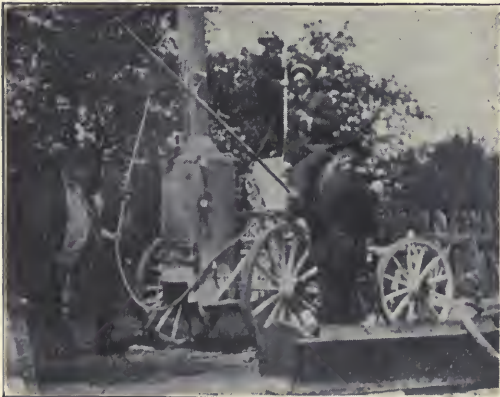


FIG. 2687. STEAM POWER SPRAYER USED AT MCKINNON'S, GRIMSBY.

could have been attended to with hand pumps. In some cases the difference was even more marked. These experiments, which were carried on in the neighborhood of Woodstock, and on the Island of Montreal, proved extremely successful in eliminating fungous diseases. Facts and figures

regarding the cost of the operations and the result as shown in the fruit when harvested will be furnished to the public later on when full details are at hand.

The power used in the Government demonstrations was gasoline. Other forms of power have been adopted by some of the large growers of the Niagara district. Jos. Tweddle, of Fruitland, used compressed air for spraying his orchards, and with considerable success; Vance Cline, of Grimsby, employed gasoline; while on the farm of D. J. MacKinnon & Sons steam was the power employed. The accompanying illustrations

show the steam outfit and the gasoline outfit at work.

It is strongly recommended that growers should give this matter serious consideration now, so as to be ready for operations next spring. Owners of three thousand or more trees would do well to procure a power outfit for their operations, while those whose orchards are smaller can in almost every instance combine together to secure and operate an outfit of this sort, which would effect a considerable saving of expense and secure much more effective work.

THE NORTHERN SPY.

WITHOUT doubt the Spy stands unequalled as a winter apple. Its long keeping qualities, and crisp, spicy, high flavored flesh, make it a universal favorite with consumers, either for dessert or cooking. When cooked in pies or sauce, it possesses that rich, spicy flavor that one always appreciates in a first-class cooker, and after mid-winter there is scarcely anything to equal it for dessert. It is also a splendid canner, and this is another use that many housekeepers make of this splendid apple. When the canned fruit is getting scarce toward spring, the empty cans can be filled with Spys, and when properly done there is scarcely anything that equals them as a canned fruit. This apple is always in demand in the large cities of the United States, and it has often been sold at fancy prices for dessert, when the samples were very choice, of uniform size, clean and well colored. Although of American origin, it reaches greatest perfection in the Province of Ontario, and especially in the Georgian Bay district, although it has a wide range

of adaptability. It is about the latest variety to mature; in the Georgian Bay district it does not get fully colored until near the end of October. It has the merit of clinging well to the tree, and is very little affected by wind storms. When the ground is strewn with other varieties, during the autumn gales, there are very few windfalls among the Spys.

But the tree is not without faults, and the most prominent one is the long time it takes to come into bearing, and then its liability to split in the crotches and fall apart. But these faults can be remedied by top-grafting it on some good hardy stock, and this is certainly the best way to grow the Spy. It will then come into bearing much earlier; the liability to splitting is avoided, and you will have a long-lived tree. That growers are catching on to this idea is evidenced by the large demand for Talman Sweets, to be used as stocks for top-grafting on, it being one of the best for this purpose.—*Farmers' Advocate*.



STORING SUMMER FLOWERING BULBS AND TUBERS DURING WINTER.

BY

WM. HUNT,

O. A. C., GUELPE.

TUBEROUS ROOTED BEGONIAS. As soon as the foliage has died down no more water should be given them. The tubers can be shaken out of the soil and packed in dry sand in shallow boxes and placed in a room or dry cellar or basement, where the temperature is from 40 to 50 degrees. Or the tubers can be left in the soil, if they have been grown in pots, leaving the tubers undisturbed in the soil until spring. The pot should be placed away in a dry cool place and no water be given them until March or April. Before growth commences in spring the tubers should be shaken out from the soil and started into growth in sand or sandy soil in small pots. I have had the most satisfactory results from tubers that have remained undisturbed in the pots than from those taken from the soil and packed in sand or any similar material for the winter. Whatever method is adopted, great care must be

taken not to place them where water or moisture can reach them during winter.

ACHIMENES AND GLOXINIAS.—Very few of the first mentioned of these are grown in windows, but their oddly shaped flowers and peculiar habit of growth make them doubly acceptable to those who love odd and pretty flowers that are not common. The same treatment as recommended for tuberous begonias can be given both achimenes and gloxinias during winter, with the exception that they should be stored in rather a warmer place than the begonias. A temperature of about 50 degrees will suit them very well. The soil or material the roots or tubers are in should be kept quite dry, but not too near the stove or furnace, as an intensely dry position would weaken if not destroy altogether perhaps the vitality of the tubers.

CALADIUMS.—As soon as the foliage of fancy caladiums show signs of decay less

water should be given them until the foliage has completely died down, when the leaves and stems should be cut off and the pots laid on their sides in a warm moist situation, where the atmosphere is damp. A warm corner under the greenhouse bench will suit them. Place the pots so that no water can drip on them from the plants on the bench above, and no water should be given them, as the moist atmosphere will supply all they need in this respect. A very dry position does not suit fancy caladium bulbs when dormant, as they often suffer from dry rot if kept in a very hot dry place.

Bulbs of the caladium esculentum, or as it is commonly called the "elephant ear" plant, that succeeds so well in the open garden in summer time in light moist soils, is not so particular as to its winter quarters as its more fancy relative I have just mentioned. The bulbs of this variety should be dried fairly well when they are taken from the ground and then packed in dry sand in a box and the box placed in a fairly dry warm room or cellar where the temperature is never below 45 degrees, and not above 70 or 75 degrees during winter. No water should be given them until they are started into growth in pots in April or early in May.

CANNAS.—These most useful decorative plants are natives of tropical climates, so that even in winter the roots of these must not be exposed to a low temperature. Very few cellars except those that are artificially heated by a furnace are suitable for storing canna roots in. A temperature of 50 to 60 degrees suits them very well during winter. By leaving a fair amount of earth around the clump of roots when they are taken from the ground and allowing the soil to dry somewhat before storing them, canna roots can be kept successfully in almost any dwelling house, provided they are kept in a warm temperature as before mentioned and not allowed to become either too dry or too wet during winter. If the room or cellar they

are stored in is very hot and dry the roots should be covered with dry earth or sand entirely, but if the position is only fairly moist the soil adhering to the roots will be sufficient to keep the fleshy tubers or roots from drying out too severely. Nothing approaching a freezing temperature agrees with cannas even when dormant, so that care should be taken to keep them at least in a temperature above 45 degrees. I have known very heavy losses to occur in the storing of canna roots during winter from their having been kept in a continuously low temperature during winter, although the temperature had never reached actually to freezing point. The fleshy rhizome like roots looked quite fresh when taken out to start them in spring, but the growth germs of the tubers had lost their vitality, a very large percentage not growing at all, and many of those that did, made only weakly sickly growth until well on in the summer.

DAHLIAS.—There is nothing better for storing dahlia roots in during winter than sand or sandy soil. Dahlia roots can be kept in a lower temperature than cannas. A fairly moist cellar (not wet) and a temperature of about 40 to 45 degrees will suit dahlia roots very well. Care must be taken not to put dahlia roots too near the furnace, as an excessively dry moisture will often prove fatal to them. The plan of drying the roots and stringing them up to the joists in the cellar as is often—in fact frequently—practised in England is not as a rule a success here, where the atmosphere is drier and where more artificial heat is used than in the old land in heating dwelling houses. In very damp cellars or basements, however, dahlia roots might possibly winter through by being hung to the joists or rafters, but dry earth or sand is about as good material to keep them in as can be found. An occasional dip of low temperature, short of actual freezing, will not hurt dahlia roots, but a temperature of about 40 degrees suits them

best. Dahlia roots will winter very well where beet roots or mangold wurzel will winter in good condition.

GLADIOLI.—The bulbs or corms of these beautiful showy flowers that have become such popular favorites with all flower lovers, are perhaps the easiest of all the summer flowering bulbs to winter through, if only ordinary care be given them. The roots of these should be dug up before severe frosts, or as soon as the tops have become browned slightly from frost. The tops should not be cut off when the roots are dug up, but should be left on just as they are dug until after the corms or roots have been dried fairly well, when they can be cut off about four or five inches above the bulb or corm. A dry cool room or shed is a good place to dry off gladioli roots in. They should be spread out thinly, tops and all, on the board floor or on benches or in shallow boxes for two or three weeks, when the tops can be cut off as before mentioned and the corms or bulbs can be put into shallow boxes and placed in a fairly dry room in a temperature of about 40 or 50 degrees, where they can be left until spring. If the room where they are kept is very hot and dry the corms should be covered with dry sand, or dry sawdust or charcoal, as an excessively dry temperature will

weaken the vitality of the corm and sometimes prevent it from starting into growth again at all. A very damp position must also be avoided, as this will induce mildew and possibly rot. I have frequently wintered gladioli roots very successfully by tying them together by the tops and hanging them to the joists in a fairly warm moist cellar but have had the best success with them by packing them in shallow boxes in dry sand and placing them in a fairly dry warm room or basement. An upstairs room or attic in a house where a furnace or steam boiler is used for heating purposes is often too dry to keep gladioli roots successfully, but in a house or room that is not over heated they can usually be kept without any very great care or attention.

In conclusion I would say that in wintering over any of these roots or bulbs I have mentioned, care should be taken to avoid extremes, whether of heat or cold, dryness or moisture. Try and give them as nearly as possible the natural conditions they receive when dormant in their native haunts, and avoid intensifying these conditions too severely, as is often done at the risk of losing partially, or altogether perhaps, a valuable collection of summer flowering roots.

FLOWER AND PLANT LORE

BY EDWARD TYRRELL, TORONTO.

CYCLAMEN PERSICUM, white, with a bright claret purple blotch at base, is the finest of the species and the parent of all other varieties cultivated in pots. It is a native of Greece, Palestine, and other parts of Syria, and was introduced into England in the middle of the eighteenth century. I read with pleasure the notes on the cyclamen by Mr. Wm. Bacon, of Orillia, encouraging those who have

not already done so to try and grow these beautiful flowers, for as he says, "they respond with such a generous profusion of bloom to moderate care and cultivation."

I had just been reading Dr. Hugh Mac-Millan's book on the "Poetry of Plants" (although there is not any of what is generally known as poetry in it), and his description of the cyclamen as he saw it growing in its native country is so beautiful that I

thought your readers would appreciate some extracts. They are rather longer than usual, but will repay for reading if you can spare the time. Dr. MacMillan says: "The cyclamen is the earliest of the flowers of Palestine. It is in the Sacred Land what the snowdrop is in our own country. Its pale petals, tinged with a hectic red, which are turned back in a way different from other flowers, remind one of an eager runner with his hair streaming behind in the wind, and his face flushed with the exertion he has been making, who has just reached the goal and won the prize. First in the floral race of the year, the cyclamen is crowned with a special beauty. It does not seem at all a wild flower akin to those weeds that are trodden hopelessly under foot, or cast out of field or vineyard. It is carefully nurtured by nature under the blue sky of God's own land as in a conservatory."

"The cyclamen brings back in imagination the days when heaven came down to earth and breathed its fragrance over these holy fields. It looks like a prophet flower with its ears bent back to hear the mystic voices of the past, and especially the voice of Him who spake as never man spake, and said, "Consider the lilies how they grow." Year after year the cyclamen grows in the clefts of the rocks and on the slopes of the hills. Its cluster of round leaves, with mysterious markings upon them like some unknown cypher writing, cling to the barest spots, clothing their nakedness, and making the wilderness and the solitary places to be glad.

"Shall I ever forget the mystic afternoon when I first gathered the cyclamen in Palestine? It was in a field beside the road that winds round the base of the hill on top of which is built the village of Latrun, the traditional birthplace of the Penitent Thief. We encamped on this spot all night as our first resting place between Jaffa and Jerusalem. The green field on which our tents were pitched was well watered by a little

brook whose musical murmur was distinctly heard in the universal stillness. It was covered with myriads of scarlet anemones and white cyclamens which almost hid the bush grass and made most gorgeous patterns like those of an Indian robe. And when the moon stood still over the wonderful scene, as it did in the days of Joshua over the valley of Ajalon, near at hand the anemones lost their scarlet hue, and darkened down with the grass among which they grew into a mass of shadows, while the blossoms of the cyclamen gleamed with a ghostly white radiance in the sympathetic light. The dinner table that night was resplendent with a bouquet such as never again adorned it in our camping experience, and a link of association with this lovely flower was formed in my mind which always vividly recalls the haunted scene and makes it "a joy forever."

"After this I frequently saw the cyclamen in the Holy Land, but the place where it struck me most was on that "green hill far away without a city wall," the mound outside the Damascus gate of Jerusalem, which is supposed to be the true site of Calvary, and as I gazed on the vivid red circle that stained its snowy petals I thought not of the Virgin Mary to whom the flower used to be dedicated, nor of the "Bleeding Nun" which the flower used to be called, but solely of the sacred blood of the crucified Redeemer shed on that spot. I saw it flourishing in great abundance in different spots along the saddest path ever trodden by man, by which Jesus ascended from Galilee to Jerusalem, and I felt sure in my own mind that he greeted none with a more tender smile than this delicately formed blossom.

"The cross and the sepulchre have vanished, but the garden remains; the shadow of the cross rests upon these cyclamens, and the hope of the resurrection rises up anew with them out of their winter grave, consecrating them as God's heralds, that speaks to us of a world won by the great victory of

the cross and the sepulchre where there shall be no more death and where the sunlight is eternal.

"The religion of Jesus has exorcised the baneful superstition which gathered round this lovely flower, and made it an object of dread as capable of causing personal injury to maid or matron who happened to step over it, so much so, indeed, that Gerard, in his famous Herbal, tells us when he had cyclamens growing in his garden he stuck a fence of sticks around them and laid others

crosswise over them lest any woman should touch them and be hurt."

Shirley Hibberd says it is quite a common event to see cyclamen persicum with fifty to one hundred flowers, and we once saw a plant that must have had at least five hundred blossoms. It was presented at a meeting of the floral committee of the Royal Horticultural Society by Mr. Wiggins, on the 12th of February, 1884. The plant was at least seven years old, with a corm nearly as large as a baby's head.

MIGNONETTE MACHET, WHITE PEARL, THE WHITE MACHET.

BY this demonstration the well known firm, Pape & Bergmann, Quedlinburg, Germany, sets forth a very remarkable novelty, which forms indeed a magnificent counterpiece to those varieties, Rubin and Goliath (the red machet), introduced by the same growers several years ago.

The exhibit of this novelty is that peculiar to the machet class, viz., vigorous and compact also very ramifying and of rich bloom. The blossom stems, erect and firm, bear long very thick and nicely obtused blossom panicles, towering elegantly above the quite dark green slightly undulated foliage, such as ought to be the case with a genuine machet. With a mignonette the color of the blossoms is of a remarkably pure white, among which now and then appear single red anthers, rendering more striking and showy still this novelty, these two colors together forming a very good and pleasant contrast with each other.

Mignonette machet (White Pearl) is as appropriate for pot flower as for growth in open ground, affords remarkable enrichment to the material for bouquets, flower glasses, etc., a white machet certainly forming a beautiful and striking alteration among the other varieties known, so this novelty will obtain a lasting and prominent

situation in the flower line. Combined with Machet Rubin, be it in beds or in bouquets, it will afford an excellent effect, these two varieties being so well adapted the one for the other. Not yet quite constant.



FIG 2689. MIGNONETTE MACHET.



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

REMITTANCES by Registered Letter or Post-Office Order addressed The Secretary of the Fruit Growers' Association, Parliament Buildings, Toronto, are at our risk. Receipts will be acknowledged upon the Address Label.

ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

CORRECTIONS.

THE ORILLIA FRUIT EXHIBIT.—A correction. On page 422 Mr. Race frankly admits the "superiority of the Spy, Baldwin and Greening." This should read the *inferiority* of those varieties; at the end of the paragraph on the second column, instead of "as far as possible *education*," read *educative*; and at the bottom of the page, instead of "the tree is said to be a good *grader*," read a good *grower*.

BRUCE COUNTY.—On page 402 of October number, instead of A Visit to Gray County, read A Visit to Bruce County.

APPLES 1

THE Fruit Division, Ottawa, has several times called attention to the scarcity of fruit in Europe this season, and the consequent good prices which

were likely to rule there for first-class Canadian fruit. In reporting on a cargo of 165 barrels of Canadian apples recently landed at Bristol in such a condition that the juice was leaking through the bottom of the cars before leaving the dock, Mr. H. J. Goff, Inspector of the Department of Agriculture at that port, confirms the opinion frequently expressed by Chief McKinnon, of the Fruit Division. Mr. Goff says: "I feel confident that if our shippers are as particular as they should be, shipping only first-class fruit, properly packed and put up, this season is bound to prove one of high market prices, as there is practically no fruit in England."

FRUIT, GOOD AND BAD.

Mr. John Driscoll, Inspector at London, reports that the S. S. Evangeline discharged

about 6,000 barrels of Nova Scotia apples on September 22nd in splendid condition. Although landed in good condition, some of the soft varieties went off very rapidly. The trade makes some objections to receiving varieties such as Astrachans, as they claim that these injure the reputation of Canadian apples. This emphasizes the fact that fall varieties should be picked early and shipped in boxes rather than barrels if satisfactory returns are to be expected.

Mr. Driscoll also reports the arrival on the S. S. Iona of 1424 barrels of apples and 46 boxes of pears. The apples were of many varieties, and arrived in satisfactory condition, but the pears were very inferior, and both consignees would prefer not to receive such shipments.

In his bulletin on the "Export Pear Trade," which may be had free of charge on application to Mr. MacKinnon, of the department, at Ottawa, Mr. MacKinnon has summarized as follows: "The exporter of pears must never lose sight of the fact that in the British markets he has to compete with the best fruits in the world; that the French exporters have attained almost to perfection in their system of grading and packing, that the Californian exporters place upon the market annually thousands of cases filled with practically perfect fruit, of larger size and excellent appearance; and that, therefore, only the most rigid exclusive grading will result in the selection of such Canadian pears as will win a place in the esteem of the public in competition with the shipments already familiar to them. One

further fact is of the importance, namely, that pears are sold individually or by the dozen, after passing through the hands of the importer and wholesaler; that each individual pear which comes from Canada is scrutinized first by the retailer, before being placed on show, and then by the consumer when it is purchased. The presence of a few pears in unsatisfactory condition reduces the retailer's profit, and as a consequence renders him less anxious to repeat orders for fruit from the same source. The Canadian exporter should therefore, 1. Grade carefully so as to have only one size in a package, and to exclude rigidly all under-sized or defective fruits. 2. Pack carefully in uniform packages plainly marked with the name and address of the shipper, the variety and grade of the fruit, and the word 'Canada' always occupying a prominent position."

FRUIT DAMAGED IN LOADING.

Fruit Inspector P. J. Carey, writing of his observations at the port of Montreal, reports to the Fruit Division that shippers make a great mistake in holding off shipping until the last moment, with the result that often the half or more of the entire shipment of handled, even from the cars, after 8 o'clock the last night of loading. When this is the case it is impossible to handle otherwise than roughly, consequently the fruit is often damaged more by the handling the last night loading on the ship than it is the rest of the week.

Question Drawer

CUTTING BACK PEACH TREES.

SIR,—When should peach trees be pruned or cut back.

JOHN THOMPSON, Cowal, Elgin Co., Ont.

The usual time for pruning the peach tree is in spring, just before the growth starts.

This is the best time if the vigor of the tree is the chief consideration. If, however, the object is to thin the fruit for the current year and develop fruit buds for the year following, the cutting back may be done in June, when the young fruit has set.

BERTRAM'S SEEDLING APPLE.

SIR,—I send you four seedlings for your opinion as to their quality. This tree, of which the samples are the second years' bearing, came up in our shop yard, and it seems to be a vigorous and healthy tree and good bearer. I shall be pleased to have your opinion any time.

JOHN BERTRAM, SR., Dundas.

A fine appearing apple, of about the size of Duchess, and of about the same season. The skin is a pale straw color, suffused with stripes, splashes and tints of bright red. Had we not already the Duchess, we would commend this apple for further trial.

A GOOD WASH FOR FRUIT TREES.

SIR,—What is the composition of a good wash for fruit trees, and when should it be applied?

JOHN THOMPSON, Cowal, Ont.

For cleansing the bark of fruit trees of fungi, and oyster shell bark louse, lye washes are excellent. The concentrated lye or potash may be bought at grocery stores. This comes in pound cans at 10 cents each, or three for a quarter. A can of this powder is dissolved in an ordinary large pailful of water, and the solution applied to the trunks of the young trees the latter part of April or up to the 15th of May, by means of an old broom or a swab. The solution is very caustic and will damage the hands or any clothing on which it falls. Great care must be taken, therefore, in handling it. We believe, however, that it is very desirable treatment for all sorts of young trees, and even for older ones which have been neglected. In cases where the trunks are attacked by the oyster-shell bark louse, this treatment is especially valuable. Soda is cheaper than potash and ought to answer equally well.

PEAR GROWING IN P. E. I.

SIR,—Mr. Bayfield, president of our P. E. I. Fruit Growers' Association has a photo of a pear tree in full bearing, with the crop of Clapp's Favorite which took the prize at our maritime fair. At his request I sent it you. What do you think of this variety for cultivation in Prince Edward

Island in the light of your experience in the export of pears to Great Britain.

A. E. BOOKE, Alberton, P. E. I.

The Clapp's Favorite, if gathered before it begins to ripen at the core, is a fine export pear, and carries a little better than the Bartlett. The only difficulty is to get a proper temperature on ship board, and until we can have a guarantee of about 33 degrees F. for such fruit, it is better to grow Duchess, Anjou, Bosc or some such variety which will carry with apples.

FRUITS FOR NAME.

SIR,—I send you two pears and four apples for name. I received October number of your journal and quite agree with your remarks about fewer varieties. I have too many varieties in my own orchard and many orchards about are in the same condition.

ALEX. ARMSTRONG, Barrie.

Pear No. 1 is Idaho, and No. 2 Duchess. Apple No. 4 resembles Phoenix, and No. 5 resembles Princess Louise, but is not ripe enough to judge of its flavor, which should resemble that of Fameuse.

GRADE MARKS.

SIR,—I ship my apples north in sugar barrels, with canvas tops, and I would like to know if the Fruit Marks Act requires them to be branded.

A. ARMSTRONG, Barrie.

The Act requires the grade to be marked on all closed packages. We should judge that barrels with canvas tops, which are easily removable for inspection, are not closed packages, and that the only requirement in such case would be that the faced^o or shown end be a fair representation of the contents.

BRIGHT'S SEEDLING PEACH.

SIR,—I send you samples of a seedling peach tree which came up in my garden eight or nine years ago. Last year we had ten baskets of fruit from it, and this year seven or eight. This peach is fine preserved. Please give me your opinion of it.

Oct. 3rd, 1903. CHAS. E. BRIGHT, Brampton.

This is a fine seedling, size about 2½ inches in diameter. Color of skin creamy white, with a bright red cheek; flesh white, tender, very juicy, sweet, rich and delicious; season, beginning of October.

Yellow flesh peaches of the Crawford type have been so far most sought after in Canadian markets, on account no doubt of the popularity of the Early Crawford, and we

know of no white flesh peach of the same season, more worthy of cultivation, than this seedling. For home uses, such as the delicious luxury of "peaches and cream," we doubt if any peach can surpass this one. It is altogether too tender to be cultivated as a market peach, consequently it would never be planted on a large scale.

ANNUAL MEETING OF THE ONTARIO FRUIT GROWERS' ASSOCIATION, TO BE HELD IN THE TOWN HALL, LEAMINGTON, ONT., NOVEMBER 24, 25, 26, 1903.

SPECIAL FEATURES.

1. Peaches.
2. Commercial Side of Fruit Growing.
3. Experiment Stations.

PROGRAMME.

Tuesday afternoon, Nov. 24, 2 p. m.

DIRECTORS' MEETING.

At this session will be presented a written report by each director of the work done in his district during the year. The secretary will present to the Association a record of the year's work throughout the Province, and business matters pertaining to the management of the Association will be discussed.

Tuesday evening, Nov. 24, 8 p. m.

PUBLIC MEETING.

Chairman—President W. H. Bunting.

Addresses of Welcome—Lewis Wigle, mayor of Leamington; John A. Auld, M.P. P., Amherstburg; C. W. Cady, President South Essex Horticultural Society; J. L. Hilborn, Leamington.

Reply to address of welcome—W. H. Rickard, M.P.P., Newcastle.

President's address—W. H. Bunting, St. Catharines.

Address—Hon. John Dryden, Minister of Agriculture.

Address—M. K. Cowan, M. P., Windsor.

Address—"Nature Study," by Dr. Muldrew, O. A. C., Guelph.

Address—"Co-operative Fruit Packing and Shipping," by W. H. Owens, Catawba Island, Ohio.

Music by Leamington orchestra.

Wednesday morning, Nov. 25, 9 a. m.

BUSINESS MEETING.

9.00—9.30—Arranging of fruit display from experiment stations.

9.30—9.45—Reading of correspondence and appointing of committees.

COMMERCIAL SESSION.

9.45—10.30—Report of Transportation Committee by G. C. Caston, Craighurst. Discussion led by W. H. Bunting, St. Catharines.

10.30—11.15—"Fruit Packages," by A. McNeill, Ottawa. Discussion led by E. D. Smith, Winona.

11.15—12.00—"Marketing," by commission merchants.

Wednesday afternoon, Nov. 25, 2 p. m.

ORCHARD FRUITS.

2.00—3.00—"Peach Growing in Michigan," by Prof. L. R. Taft, Agricultural Col-

lege, Michigan. Discussion led by J. L. Hilborn, Leamington.

3.00—3.30—"A Season's Observations in the Peach Orchards of Georgia," by A. B. Cutting, Guelph.

3.30—4.30—"Hardy Fruits for Northern Districts," by W. T. Macoun, Ottawa. Discussion led by A. D. Harkness, Irena.

4.30—5.00—"Power Spraying," by W. A. MacKinnon, Chief Fruit Division, Ottawa.

5.00—5.30—"Insects and Fungous Diseases of 1903," by Dr. Jas. Fletcher, Ottawa.

Wednesday evening, Nov. 25, 8 p. m.

PUBLIC MEETING.

Chairman—W. H. Bunting.

Introductory—J. Elliott, Principal Leamington High School.

Address—Dr. Jas. Mills, O.A.C., Guelph.

Address—"Civic Improvement," by Geo. R. Patullo, Woodstock, secretary of the Canadian Association for Civic Improvement.

Address—"Pear or Twig Blight," by Prof. F. C. Harrison, O.A.C., Guelph.

Address—"A Visit to the Old World," by L. Woolverton, Grimsby.

Thursday morning, Nov. 26, 9 a. m.

9.00—9.15—Report of Nominating Committee.

9.15—9.30—Appointing Standing Committees.

WORK OF FRUIT EXPERIMENT STATIONS.

Chairman—Dr. James Mills.

9.30—9.45—"New Fruits," by Prof. H. L. Hutt, O.A.C., Guelph. Discussion led by Prof. W. T. Macoun, Ottawa.

9.45—10.00—Secretary's report. L. Woolverton, Grimsby.

10.00—10.30—"Grapes," by Murray Pettit, Grimsby.

10.30—11.00—"Blackberries and Currants," by A. W. Peart, Burlington.

11.00—11.30—"Raspberries and Commercial Apples," by A. R. Sherrington, Walkerton.

11.30—12.00—"Apples and Cherries," by C. C. Caston, Craighurst.

Thursday afternoon, Nov. 26, 1.30 p. m.

1.30—2.00—"Plums," by J. G. Mitchell, Thornbury.

2.00—2.30—"Pears," by R. L. Huggard, Whitby.

2.30—3.00—"Apples," by W. H. Dempsey, Trenton.

3.00—3.30—"Apples," by Harold Jones, Maitland.

3.30—4.00—"Strawberries," by E. B. Stevenson, Jordan.

4.00—4.30—"Peaches," by W. W. Hilborn, Leamington.

Unfinished business.

HORTICULTURAL SOCIETIES.

Thursday morning, Nov. 26, 9.30 a. m.

Chairman—T. H. Race, Mitchell.

9.30—9.45—Introduction by the chairman.

9.45—10.30—"Planning and Planting the House Grounds," by W. Hunt, O. A. C., Guelph.

10.30—11.15—"The Arrangement of Flowers at Our Fall Fairs," by W. Gamage, London.

11.15—12.00—"The Work of Our Horticultural Societies in Our Towns," by A. K. Goodman, Cayuga.

Thursday afternoon, Nov. 26, 1.30 p. m.

1.30—2.15—"The Coleus and Other Foliage Plants," by J. S. Scarff, Woodstock.

2.15—3.00—"The Gladiolus," by R. B. Whyte, Ottawa.

3.00—3.45—"Winter Window Gardening," by Dr. Jas. Fletcher, Ottawa.

3.45—4.30—Address by H. L. Hutt, O. A. C., Guelph.

HOTEL ACCOMMODATION.

The Wigle House, Leamington, will be the directors' headquarters during the convention. Rates, \$1.50 per day. The Huffman House, Deming House, and Ryall Hotel are also prepared to accommodate visitors at \$1.00 per day each.

RAILROAD RATES.

All visitors to the convention will please secure single tickets and standard certificates from their respective station agents. These, when signed by the secretary and presented to the station agent at Leamington, will entitle the holder to a reduced return rate. Where two roads are used, certificates should be procured from each.

OUR BOOK TABLE.

RURAL SCHOOL AGRICULTURE, by W. M. Hays. Professor of Agriculture, University of Minnesota, St. Anthony Park, Minnesota; McGill-Warner Co., printers, St. Paul, Minn.

This is a unique book, containing two hundred most interesting exercises for practical class demonstrations in nature study, agriculture and household economics. It should be a great aid to teachers who wish to interest and instruct their pupils along these lines.

SYSTEMATIC POMOLOGY.—Treating of the descriptive nomenclature and classification of fruits, by F. A. Waugh; Orange-Judd Co., New York, 1903.

This is a work of great interest to students of Pomology. It deals in excellent fashion with description, nomenclature and classification of fruit. Such a work should go far to reduce to uniformity the work of students of horticulture, especially in their studies of Pomology. No one making the least pretensions in such lines should be without it.

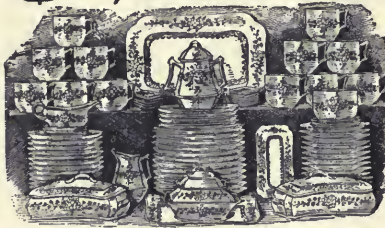


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FIG. 2690. TRANSCENDENT.

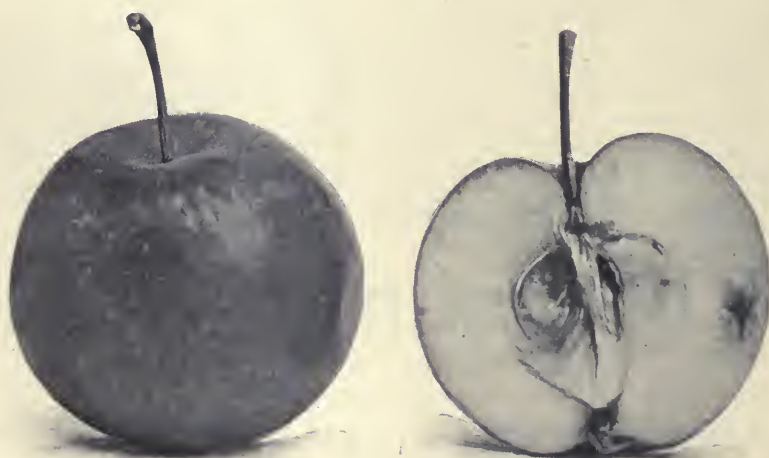


FIG. 2691. HYSLOP.

THE CANADIAN HORTICULTURIST

DECEMBER, 1903

VOLUME XXVI



NUMBER 12

CRAB APPLES

TRANSCENDANT.

An excellent early autumn variety of the hybrid crabs.

ORIGIN: United States.

TREE: of moderate slender growth, hardy, somewhat subject to twig blight.

FRUIT: size $1\frac{1}{2}$ inches long by $1\frac{1}{4}$ broad, which is a medium size for its class; form roundish oblong, flattened at the ends, ribbed; color of skin, golden yellow with crimson cheek and thin whitish bloom; stem one and a quarter inches long set in an open deep cavity; calyx closed, segments large, set in a hollow, slightly corrugated basin.

FLESH: color yellowish; texture crisp and moderately firm; flavor acid, slightly astringent, becoming pleasant when fully ripe.

SEASON: August and September.

HYSLOP.

A well known and widely cultivated variety of hybrid crab. Its dark, rich, red color and its late season make it a valuable variety.

TREE: vigorous, of spreading habit.

FRUIT: size $1\frac{1}{2}$ inches by $1\frac{1}{4}$; form roundish ovate, obscurely angular; color a dark rich red, covered with heavy blue bloom, and having many obscure yellowish dots; stem about one inch and an eighth in length, set in an obtuse, regular cavity.

FLESH: yellowish, acid.

SEASON: September and October.

VALUE: very good for culinary uses and for cider.

ORANGE.

A fairly good dessert variety of hybrid crab.

ORIGIN: United States.

TREE: a slow grower, productive.

FRUIT: size medium, $1\frac{1}{2}$ inches by $1\frac{1}{4}$; form round, slightly flattened at the ends; color light orange, with minute white dots and russet veins; stem, slender, $1\frac{1}{4}$ inch in length, set in a deep open cavity; calyx closed, in a furrowed basin.

FLESH: color yellowish, with yellow veinings; texture a little dry; flavor mild, pleasant acid.

SEASON: September.

WHITNEY.

(Whitney's No. 20.)

One of the most popular and widely planted of the hybrid crabs, being large in size and good for dessert or cooking purposes and for cider making.

ORIGIN: Illinois.

TREE: very hardy.

FRUIT: large for its class, measuring 2 inches long by $2\frac{1}{4}$ broad; color waxen yellow ground nearly covered with dark red and crimson, and having a few minute, white dots; stem one inch long in a wide, obtuse, regular cavity; calyx closed in a flat wrinkled basin.

FLESH: color yellow; texture tender and juicy; flavor sub-acid, pleasant.

VALUE: dessert second rate; cooking first rate.

SEASON: August to September.

In the southern fruit districts of Ontario the hybrid crab apples are of little commercial value, and are never planted for profit. Here and there a tree or two may be found in the garden or on the lawn as an ornament, or to supply the house with fruit enough for preserves or jelly, which latter is highly esteemed. Thirty or forty years ago the Transcendent, the Montreal Beauty and the Yellow Siberian were the varieties mostly planted, and of these the Transcendent still holds its place, though largely supplanted by the Hyslop.

But, in the far north, where our fine commercial apples cannot be grown, it has been found that hybrids of the Siberian crab with the common apple are of the greatest value. The Siberian crabs proper (*Pyrus baccata*)



FIG. 2692. ORANGE.

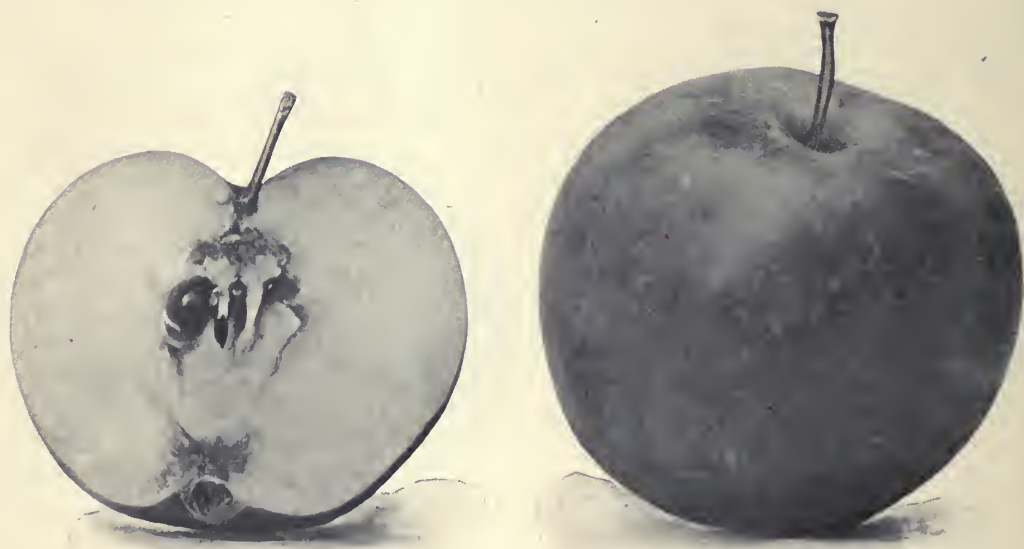


FIG. 2693. WHITNEY.

are distinguished from the apple (*P. malus*) by their long slender fruit stalks, often two or three inches in length, by their firm flesh, which never becomes mellow, and by their deciduous calyx, which falls before the maturity of the fruit. But this distinct type of crab is chiefly useful to us for crossing with more valuable apples, to which their hardiness is thereby imparted in a remarkable degree.

In this month's issue we give our readers photogravures of four varieties of these hybrids, which are already widely cultivated in the colder parts of Canada, viz.: Transcendent, Hyslop, Orange and Whitney, and we shall be pleased to receive notes concerning their value from correspondents living in our northern sections.

Fisher, in Montana Sta. Rept, 1902, has been testing ten of the hardiest varieties of crabs, and reports that the best were Whitney, Transcendent, Hyslop, Orange and Greenwood, the latter of which is not known with us.

Dr. Wm. Saunders, director of the experimental farms of the Dominion, who is a noted hybridist, has been making praiseworthy efforts in this direction, and has already succeeded in producing several new varieties of apples which promise to be of especial value in the Northwest Territories.

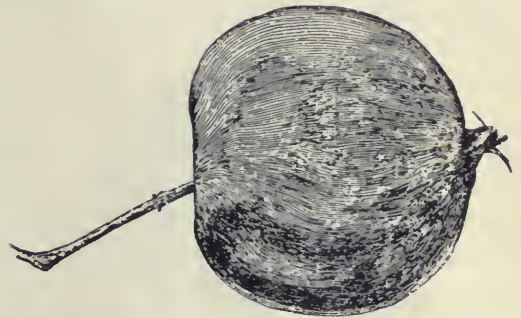


PYRUS BACCATA.

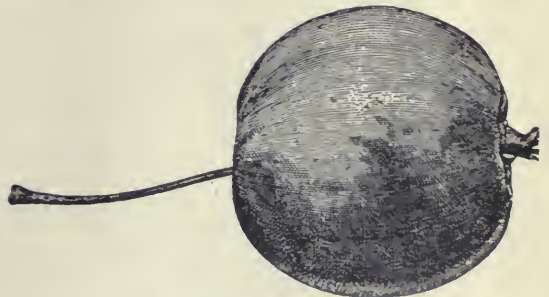
In this work Dr. Saunders used seed of the berried crab, *Pyrus baccata*, imported from St. Petersburg about ten years ago, and raised seedling trees at Brandon and Indian Head, which have proved perfectly hardy and productive, although the fruit was inferior and about as small as a cherry. (See Fig. 2694 after Dr. Saunders.)

In 1894 crosses of these seedlings were

made with Tetofsky, Duchess and Wealthy, and out of a large number of crossbred trees, which varied much in form and size, several have been found worthy of distinction in the Northwest, and all seem to retain the hardiness of the crab parentage. We give illustrations from the Doctor's report of two of his hybrid crabs, in order to give our readers some idea of the progress so far in this work. We also attach his descriptions of the same.



CHARLES.—*Pyrus baccata* female, with Tetofsky male, planted in orchard at one year from seed, April 28th, 1896. The tree has grown rapidly and wintered well. In the spring of 1899 it bloomed freely. The flowers were deep pink in bud, large when open, pinkish white, petals wide. The fruit set well and ripened about September 3rd. Size of fruit 1 9/16 inches across and 1 6/16 inches deep, distinctly ribbed, calyx persistent. Color a uniform yellow and very attractive. Flesh yellow, solid, crisp, juicy, with a pleasant flavor, mildly acid and very slightly astringent. Skin rather thin, fruit bakes well.



PIONEER.—*Pyrus baccata*, female, with Tetofsky, male. Planted in orchard as a yearling tree, April 28th, 1896. It has grown rapidly and it blossomed freely in the spring of 1899. The blossoms were pink in bud, large and pure white when open, petals wide. The fruit set well and was ripe September 21st. Size of fruit 1 3/4 inches across and 1 1/4 inches deep, slightly ribbed, calyx persistent. Color yellow, with a pink cheek. Flesh white, fine grained, firm, crisp, moderately juicy, subacid, with a pleasant flavour, astringency very slight.

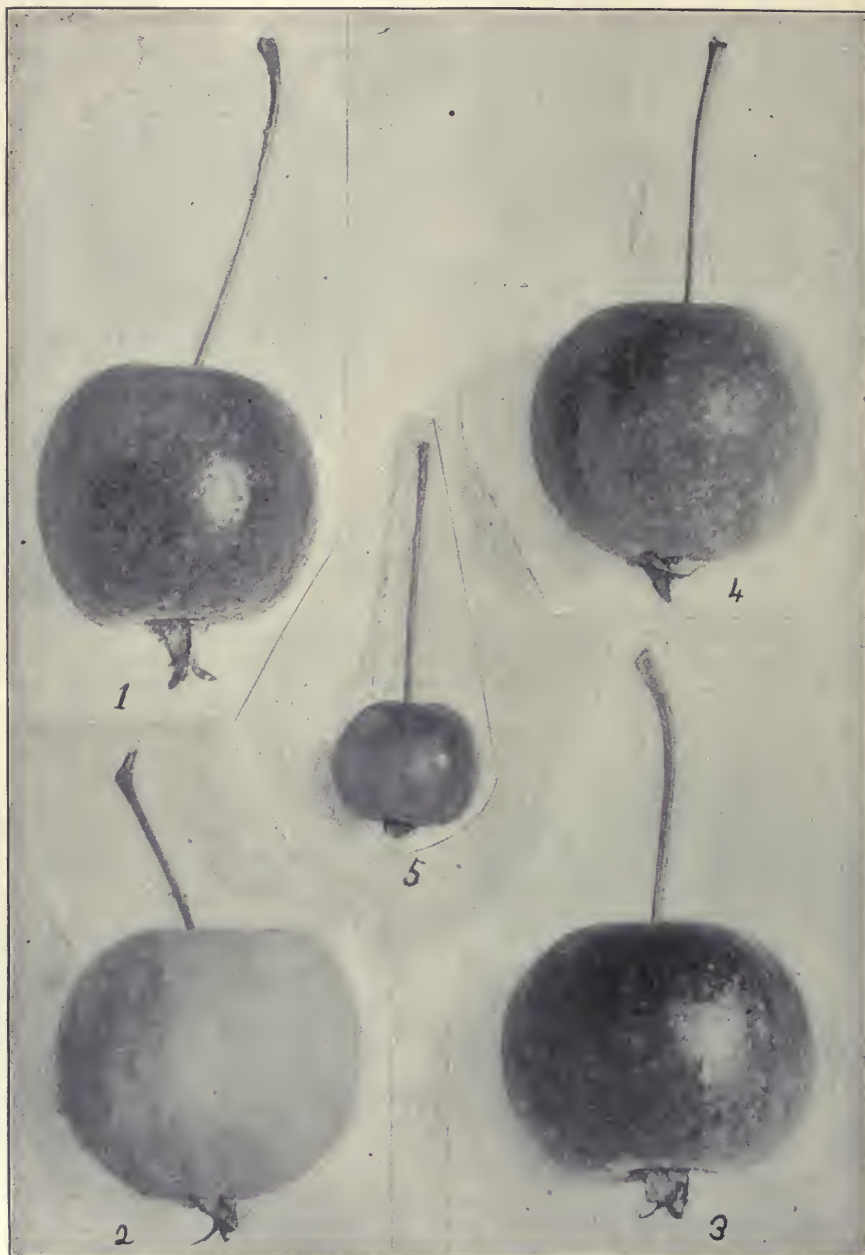


FIG. 2694. SHOWING SOME OF DR. SAUNDERS' HYBRIDS FROM *PYRUS BACCATA*.

Editorial Notes and Comments

FRUIT put away for winter use should be kept cool or it will soon decay. If in the cellar, the doors and windows should be opened enough to keep the temperature down as near the freezing point as can be with safety.

SCIONS may be cut and packed away in sand or fresh saw dust until needed. There are many apple and pear trees of unprofitable varieties; these should be marked and top grafted in early spring.

TOOLS, ladders, baskets, etc., should all be carefully gathered and stored. These may be repaired or painted as may be desired during the winter season. For this purpose a tool room heated with a stove is a great convenience.

PRUNE grapes, currants and gooseberries and pack away the cuttings in fresh saw dust, or in earth not too dry, for spring setting. One may just as well enlarge his plantation in this way as to pay the nurseryman to grow the young plants.

A WINTER MULCH of strawy manure, or of leaves and evergreen boughs over the earth about the strawberry vines, will prevent the alternate freezing and thawing which is so injurious to the plants.

THE LAWN should receive a top dressing of fine manure and ashes to keep it in a thrifty condition. Parts on which the growth is weakly should be marked for a fresh sowing of seed in the early spring.

IRRIGATION does not seem to be always advantageous. Jordan, of the New Jersey Station (Rept. 1902) got a better yield of asparagus from plots not irrigated than from those irrigated; and the ripening of Lombard plums was delayed six days by irriga-

tion. Of small fruits the yield was considerably increased, raspberries 5 per cent., currants 10 per cent.

THE GARDENER should remember at this season to lay aside in a cellar a good supply of fine rich earth for use in spring in his hot beds and cold frames.

A DOMINION EXHIBITION is proposed for Winnipeg in 1905, and the project is being heartily supported by the public organizations of that city.

NUT GROWING would no doubt be a profitable industry in some parts. J. T. Lovett, of Emile, Pa., has about twenty-two acres of chestnuts, containing about 12,000 trees from 4 to 13 years old. They are set in rows 30 feet apart each way, and the ground cultivated. The thirteen year old trees are in bearing and yield about a bushel of nuts each year. The Paragon is the favorite, because of its productiveness. Chestnuts appear to be in great demand, and the whole crop of this orchard last year sold for \$10 a bushel.

THE HYSLOP CRAB has brought the highest price of any at the South Haven fruit station, Michigan, during the past season.

THE HERBERT AND THE SARAH raspberries are two of the hardiest varieties so far tested at the Central Experimental Farm, Ottawa. The former was originated by our director, Mr. R. B. Whyte, and the latter by Dr. William Saunders, both of Ottawa.

THE SODA MIXTURE for spraying has been used in Europe for three years past, instead of the Bordeaux. It is more easily applied, is cleaner to handle, and adheres better to the foliage than when lime is used.



FIG. 2695. APPLE PACKING IN THE ORCHARD. A PICKER EMPTYING HIS BASKET ON THE PACKING TABLE.

It is a little more expensive than lime, but the advantages are in its favor. Five pounds of the soda are needed to neutralize the four pounds of sulphate of copper. The formula therefore would be:

- 4 pounds copper sulphate.
- 5 pounds washing soda.
- 40 gallons of water.

SPARKS' EARLIANA tomato has been tested for three years by Prof. Macoun, horticulturist at the Central Experimental Farm, Ottawa, and has proved itself the best early variety out of 93 varieties tested; the first fruit having been gathered on the 29th of July. The seed was sown in hot bed on April 3rd, the plants pricked out into strawberry boxes on April 25th, and planted in the open ground on June 2nd, four feet apart each way. The fruit is not only very early, but also of good size and quite smooth. The total yield of five plants was 77 lbs. 6 ounces, or about 15 lbs. per plant.

HARDY APPLES FOR THE NORTH.

WHILE in the most northerly parts of Ontario crossbred Siberian Crabs are the most promising varieties of apples, there is a line south of which

some of our hardier varieties of *Pyrus malus* may be successfully grown, and in view of the rapid settlement of these parts we cannot too soon determine what varieties may be safely recommended for cultivation. Fisher, of Montana, Sta. Rept. 1902, reports on 64 varieties planted in 1895, of which only twenty-six are alive, and of this number only eight are worth growing. These are Wealthy, Yellow Transparent, Duchess, Okabena, Hiberna, Tetofsky, Longfield and Gideon.

THE WEALTHY APPLE.

The Wealthy apple seems to be growing in favor on all sides, and especially along the northern limits of its growth. It is perfect in form, free from spots, does not need spraying, is little affected with codling moth, and is withal beautiful to look upon and pleasant to the taste. Almost the only fault found with it is that it drops early from the trees, and this can be obviated by early harvesting. Mr. W. T. Macoun has an acre of Wealthys at the Central Experimental Farm, Ottawa, and has been exporting them in bushel boxes, tastefully packed. His records show an average profit for four years of \$121.38 from trees set ten feet apart in the orchard each way.

Prof. Macoun exported his Wealthy apples to Glasgow last fall, and was much pleased with the result. On the 1st of October, 1902, he forwarded 59 cases of Wealthy in boxes measuring $10\frac{1}{2} \times 11\frac{1}{2} \times 22$ —the California 50-lb. apple box—and they were sold at 6s. 9d. per case.

SCAB ON THE APPLE AND PEAR.

EVERY season, unless climatic conditions are peculiarly unfavorable to its growth, this fungus becomes more and more troublesome to the fruit grower. Varieties that once were immune are now quite subject to it, and a large part of the crop is unfit for market, both

from its scabby appearance and its consequent small size. Besides this, the trees themselves are weakened in growth and are less productive, so that the fruit grower has in this fungus a most serious obstacle to his success. Eriksson (see *Expert. Sta. Record* Oct. 1903, p. 163) recommends immediate removal and destruction of fallen leaves from affected trees, and spraying or washing the bare trees with Bordeaux mixture, or copper sulphate solution, during the winter. In addition he advises two or three sprayings in spring and summer.

FRANCE A MARKET FOR CANADIAN APPLES.

IT has been already pointed out in these pages that France is asking for Canadian apples, and that for our first-class stock a good demand may be found in Paris among the first-class people who appreciate a good thing and are willing to pay for it. That this is not mere conjecture is proven by some recent sales of apples to go to Paris. The writer for example has a contract for 150 boxes of prime apples, to go to that city as a sample lot to open up a trade for coming years. They are all to be fancy colored apples, weighing not less than seven ounces each, to be wrapped in paper, and carefully packed with excelsior. For these the writer is to receive \$1.72 per box delivered in Montreal. This is a high figure, but perhaps not too high for such a high grade article.

"Certainly not," says Mr. John Brennan, of Grimsby, "for I have been doing as well as that in our own country. I pack my fancy XXX Spys that way and sell them only on order. Last spring I made sale of some of my best brand for \$2.50 a box, delivered in Quebec! I often make sale of this brand at from \$1.50 to \$2.00 a box in Canada during the winter."

Now we have no doubt that fancy stock, packed in an attractive manner, will com-



FIG 2696. APPLE PACKING IN THE ORCHARD. THE CHOICE SAMPLES GO IN BOXES, AND ORDINARY STOCK IN BARRELS.

mand good value in almost any city in the world, even in the heart of an apple raising country.

HOW TO PACK.

A subscriber, Mr. C. McIlthargey, of Stratford, writes:

SIR,—I was told that you had experience in packing apples in boxes, and as we cannot get barrels we have had some boxes made same as used for oranges, but find difficulty in getting them packed tight. Do you advise wrapping in paper or using some kind of packing, such as excelsior, for the top. Any information you give will be greatly appreciated.

The orange box is entirely too large for such heavy stock as apples; besides, the sides are made of material that is too thin, and outside pressure would bruise such unyielding fruit as apples. For apples either a forty pound box, measuring inside 9 x 12 x 18, or a bushel box measuring inside 10 x 11 x 20 is much more suitable. The former is the California pear box and the latter is the Tasmania apple box. These are made of $\frac{1}{4}$ or $\frac{3}{8}$ inch sides, and $\frac{5}{8}$ ends, and will be found to pack well.

We wrap all extra XXX fruit in tissue paper and pack against the top, in rows, four apples wide, three or four deep, and from 6 to 8 long, according to the size of the box and the size of the apples.

For padding we use excelsior, and the



FIG. 2697. APPLE PACKING IN THE ORCHARD.
NAILING UP THE BOXES, USING EXCELSIOR
OR WOOD SHAVINGS AS PACKING
MATERIAL.

same under the cover to prevent the bottom lid from bruising the fruit when it is being nailed on. This stock is selected in the orchard and brought into the fruit house for wrapping and packing.

Ordinary XXX, or No. 1 apples, we pack in boxes from the packing table in the orchard, and the No. 2 in barrels, throwing the culls into heaps on the ground to be afterward gathered up for cider. No doubt it would be better to evaporate all No. 2 apples, instead of shipping them, and if this work could be done at home, on a small sized evaporator, probably this kind of stock could be made to bring the grower almost as much money as his No. 1.

CIDER APPLES FOR FRANCE.

THERE seems to be a most unusual shortage of apples in Europe, when even our Ontario culls are being bought up and forwarded to France for cider making. The Oakville Star of the 7th November has the following interesting item:

For over a week the Dawson Commission Co. have been buying up solid cull apples around the country and packing them in boxes weighing three hundred pounds each and holding as much as two barrels. The biggest rush was on Tuesday, when over a dozen teams, with large loads of apples, waited their turn on the hill to the wharf. Many of these apples were

not marketable at all, being too small, but as long as they were sound they were all right for this purpose.

The steam barge, Lloyd S. Porter, came in on Tuesday, and the pier was pretty well filled up waiting for her. She called at Burlington and took over twelve hundred boxes from there. It was after eleven o'clock at night when she finished loading. All day the company had a big gang busy.

The shipment from here was about fifteen hundred boxes, or about three thousand barrels, which is the biggest shipment ever put out of Oakville. A number of carloads were also shipped from Bronte. The entire shipment from Canada to France will be one hundred thousand boxes. The taking away of these apples has left about twelve hundred dollars worth our farmers for stock which otherwise would have largely gone to waste.

We purchased these apples at a low price, said the Dawson Co. to the writer, only about eight cents a bushel, but we took everything in, no matter how small or scrubby. The French buyer does not wish to take more at present, but we are just now negotiating with an English buyer for a shipment of the same class.

"I do not see," said Mr. Chapin, of Madalin, N. Y., "why your Ontario farmers do not forward their own fruit just as our growers do. I am forwarding agent for fruit growers along the Hudson river, and there every farmer ships his own stock, even if he has only fifty barrels."

DOES IT PAY TO SPRAY.

THE excellent results of faithful spraying with the Bordeaux for the prevention of apple scab is wonderfully evident in the Johnson orchard, near Simcoe, in Norfolk county, as will be seen by reading the article on page 355, by T. H. Race, of Mitchell, who was judge of fruit at the Simcoe Model Fair, and who visited the orchard the day previous to our visit.

There must surely be some conditions not fully understood when such remarkable results attend spraying in some instances, while in others, with the work apparently as well performed, the benefits seem to be comparatively small. It is only in the latter instance that there is any question as to whether it pays or not.

FACTORIES PAY GOOD PRICES.

"Now," said Mr. Fick, of Simcoe, "in selling to the factories a few spots are not objectionable, for they are removed with the skin. So, in raising apples for the factory, spraying is not a necessity, and all that expense is saved."

"But if you had clean fruit would it not bring you far more money if you were to export it?" we asked.

"Well, it is a question. The factory pays me 50 cents a hundred pounds, or about 25 cents a bushel, and takes every apple, so you see I have no culls to throw out. Then, if I were packing for export I should have to pick my apples by hand, and that would mean a great expense this year with the present high price of labor; indeed, I do not believe I could possibly get men enough to hand pick all the apples in this big orchard. For the factory I can shake them down and so handle my crop quickly, and with very little expense. Besides this, I have no barrels to buy, and this year, at 50 cents a barrel, they make a large item in the cost of handling the crop. Now the whole cost of handling my apples for the factory is not more than two cents a bushel, for we simply shake them down and carry them in the boxes furnished us. The packing, too, is no small item in putting up an apple crop for export, and I am saved that expense also."

"What varieties have you?"

"I have ten acres of Spy, ten of Greening and twenty of Baldwin."

"What quantity do you expect to harvest?"

"About 20,000 bushels, which will bring me from the factory about \$5,000, with comparatively little expense harvesting them."

"Do you consider this light sand about Simcoe well adapted for apple raising?"

"No, it is not the best soil but by proper fertilizing we can grow fine fruit. When the trees were young I gave them plenty of

stable manure, and now I do not apply stable manure but every year I sow a bushel of wood ashes about each tree. This, I think, helps to give color to the fruit, as well as vigor to the tree growth. Then for nitrates I grow clover. Every spring, say about the first of May, I plow under the clover, putting a chain on my plow so as to cover it well. Then I cultivate the orchard for about two months and about the first of August I sow clover again. Each succeeding year the clover seems to catch better, so that this year I had a wonderful crop, as you can see."

A COMPARISON WOULD BE INTERESTING.

Now, while there is no question that Mr. Johnson's course of so spraying and pruning his trees that they have yielded a crop of beautiful, clean fruit, worth the highest price in the market, is the ideal one for us all to aim at, still it would be interesting to have a comparative report tree per tree, showing the relative profits of the two methods. The one man has been to a very great expense, throughout, from spraying to harvesting, while the other has done everything in the cheapest manner.

Perhaps the best commentary on it all is the determination on the part of Mr. Fick that next year, providing he can get the use of a power sprayer, he will have his orchard thoroughly treated. After reading the favorable reports upon the excellent results obtained in lessening scab with the use of the lime and sulphur mixture, his present intention is to give his orchard a thorough whitening with it in early spring.

We are all agreed in the great possibilities which may result from proper spraying, but with a large orchard the undertaking by hand is so enormous that many fruit growers would prefer to take their chances rather than undertake it, especially with the present high price of labor.

POWER SPRAYING WANTED.

There is no doubt that one half the spraying is so badly done that only failure could possibly result. The work is so dirty, so laborious and disagreeable, that the material is not properly prepared, nor is one-tenth of the leaf or fruit surface covered. Few orchardists seem to remember that only the parts covered with the mixture are safe from the tiny fungous spores which float about in the atmosphere. The time will soon come, we hope, when we shall have the professional sprayer, who will thoroughly understand his work, and who will take contracts for the season to do the spraying with a power outfit just as it ought to be done.

"It would cost me," said Mr. Fick, of Simcoe, "at least \$500 to spray my big orchard by hand in the way my neighbor Mr. Johnson has done his. I have fourteen hundred trees about twenty years planted, and to spray them as they should be sprayed, would be no small undertaking."

"With a power sprayer," said Mr. Alex. McNeill, the chief fruit inspector from Ottawa, who was with us, "it would not cost you nearly as much as that. With our gasoline engine, which we used in the orchards between Ingersoll and Woodstock, we found that one could take a contract for spraying an orchard of bearing trees at about three cents per tree, and that with such a power sprayer the work could be thoroughly done for about ten cents per tree for the whole season. At this rate," said he "this orchard of Mr. Fick's, containing 1,400 bearing trees, could be sprayed for the whole season for an outlay of say \$140."

AN IMPROVED BORDEAUX.

IN Great Britain and Europe during the past three years a mixture has been made with washing soda to neutralize the sulphate of copper instead of lime. It is claimed that this mixture adheres better

than the ordinary Bordeaux mixture. Tests were made at the Central Experimental Farm this year to learn how much soda was necessary to neutralize 4 lbs. of bluestone, and it was found that 5 lbs. were needed. The formula for the preparation of the soda mixture would thus be:

4 lbs. copper sulphate.

5 lbs. washing soda.

40 gallons water.

An experiment was tried to determine the value of this mixture as compared with the ordinary Bordeaux, but as none of the fruit was spotted no conclusions could be drawn. The soda mixture is well worthy of a trial, for although a little more expensive, it is more easy of application than that made with lime, and often good lime is had to get in the country.

IMPROVING OLD ORCHARDS.

WHILE spraying is the best means of insuring apple and pear orchards against fungus and insect enemies, it is only one of the conditions of success. Top grafting to proper kinds, pruning and manuring are too much neglected in Ontario orchards.

"Is my orchard too old to graft over to better and more profitable kinds?" asked a neighbor. The trees were not over forty years of age, and were good for another sixty years, so we replied that it would pay well, for the new scions would come into bearing within two or three years, and in a few years the trees would be entirely changed over.

"I can see the results of last year's thinning of the young wood on my Spy trees," said another. "I followed the advice given in the Canadian Horticulturist about pruning, and instead of beginning at the trunk and cutting off the large limbs I took a high step ladder and began at the outside of the trees and thinned out the young bearing wood only. I continued this method in to-

ward the interior of the tree. It was a slower job than simply cutting off a few big limbs but it has paid me well, as a comparison with trees not so pruned plainly shows. The apples on the trees on which the wood was carefully thinned out were very large and fine; but on those not so treated they were small and uncolored."

"And I," said another neighbor, "have had extraordinary results from a very simple method of fertilizing. Some years ago I read in the report of the Ontario Fruit Experimental Stations a recommendation of a treatment for enriching orchard soil; it was the yearly plowing under of a cover crop of red clover, together with the annual application per acre of 50 lbs. of superphosphate and 50 lbs. of wood ashes. This was a very economical treatment, and I resolved to try it on the poorest bit of orchard on my farm. The soil was very poor, and for years the fruit produced had been almost worthless. The orchard was chiefly Spy apples and Bartlett pears. I have persisted in this treatment every year for about six years, and now this plot is acknowledged to be the best on my farm. Both the Spys and the Bartletts have given me splendid annual crops, the fruit has been large and fine, and more highly colored than in any other part

of my orchard. I attribute the heightened color to the potash."

EVAPORATING SURPLUS APPLES.

IN some cases we have no doubt that it would pay the fruit farmer to evaporate his own second grade apples rather than sell them to a company who will only pay him from forty to fifty cents a hundred pounds. The only question is that of hands to do the work. A profitable machine, capable of turning out from 300 to 400 lbs. a day, can be purchased for about \$100, and would prove a profitable investment, especially in cases where the family will turn in and help on the work. Evaporated apples sell at about six cents a pound; and since a hundred pounds of fresh apples would give about fourteen pounds of dried product, worth about 85 cents, or a little more than 40 cents a bushel for the green apples, it is evident that the investment would be a good one.

McArthy, of the North Carolina Experiment Station, does not favor the common method of bleaching apples by fumes of burning sulphur, but advises instead that they be dropped into a tub of weak salt brine, made in the proportion of one pound of clean table salt to sixteen gallons of water, and boiled together for ten minutes.

EDUCATION AND SUCCESS

AN uneducated child has one chance in 150,000 of attaining distinction as a factor in the progress of the age.

A common school education increases his chance nearly four times.

A high school education increases the chance of the common school child twenty-

three times, giving him eighty-seven times the chance of the uneducated.

A college education increases the chance of the high school boy nine times, giving him 219 times the chance of the common school boy and more than 800 times the chance of the untarained.—*The World's Work*.

OFFICERS OF NORFOLK FAIR



FIG. 2698 MR. J. THOMAS MURPHY.

THE photographs of the secretary and superintendent, which were forwarded at our special request, came just too late for our November issue, so we have pleasure in using them this month with some personal remarks added, which we are sure will be interesting to fair managers in other parts.

MR. H. H. GROFF, PRESIDENT.

Mr. Groff holds the following public offices: President Norfolk Union Agricultural Society, president Simcoe Horticultural Society, president Norfolk Poultry Association, vice-president Norfolk North Riding Agricultural Society, vice-president for Canada, Society of American Florists;

he is also manager of the Molsons Bank, Simcoe, but it is in his work in crossbreeding the gladiolus that has more than anything else made him famous. Of his work in connection with the Fair, Mr. Murphy writes: "The consensus of opinion is that we have the right man in the right place. As the head of the Association, his executive ability is of the first order. He is always courteous and obliging to one and all, and in the allaying of all matters causing the least annoyance or friction in reference to any of the exhibitors or the public, his wise counsel and decisions give the most perfect satisfaction."

MR. J. THOS. MURPHY, SECRETARY.

J. Thos. Murphy, who has lived in Simcoe almost all his life, has occupied the position of secretary for this association 30 years. When first elected, the Fair occupied ten acres, on which was erected a medium sized hall and a small poultry house. The membership was limited, and the entries numbered some 1,600 or 1,800. To-day about 20 acres are occupied for Fair purposes, and the following are among some of the buildings erected thereon: A woman's building for ladies' work and arts, a carriage building, a grain, fruit and vegetable hall, a poultry house, four horse stables, five cattle sheds, 300 feet of pig pens covered with galvanized iron, four large sheep pens also covered with galvanized iron, a grand stand and secretary's office, and directors' room, with fine horse ring in front of grand stand, surrounded by a good picket fence, the buildings being all well painted and in good preservation.

The grounds are also much improved in appearance by the extensive planting of maple trees, around the outside of ground, also encircling the horse ring, and several beauti-

ful groves in various places in the grounds, thus making the grounds and buildings second to none in the Province.

The membership at present is between 400 and 500, and the entries average between 4,500 and 5,000.

Mr. Murphy occupies the position of president of the Canadian Association of Fairs and Exhibitions for the third term, is secretary-treasurer of the Simcoe Horticultural Society, and also secretary-treasurer of the Norfolk Poultry Association. He held, until its removal from Simcoe, for a number of years, the position of U. S. Vice-Commercial Agent at this point.

Mr. H. H. Groff says of him: "It is a well known fact that in organized effort of this kind success is impossible without an efficient secretary, and the great and continued success of this Fair is the best evidence of the efficiency and well known ability of Mr. Murphy, who, since its inception, has devoted his time and energy to a work that has become a monument to the honor of his name wherever the Fair is known. In spite of this great success and its merited recognition by the Provincial Association in the election of Mr. Murphy as its president, like all men of high mental qualities, he is a man of retiring disposition and modesty to the verge of self effacement, and these facts add to the satisfaction of his many friends, who recognize the force and ability of the man in the character and quality of his work."

W. F. KYDD, SUPERINTENDENT.

W. F. Kydd was born in the parish of Barry, County of Forfar, Scotland, the son of a farmer, who was a tenant on one of the finest farms on the Panmore estate. He left Scotland for America in 1878, and farmed for ten years in Kansas and Nebraska, leaving the latter state for Canada on account of his children's education. He settled in Simcoe thirteen years ago, pur-



FIG. 2699. W. F. KYDD.

chasing a small farm inside the corporation of said town. This farm he greatly improved, and turned many an acre of stumps into strawberry beds and fruit trees. He has been greatly interested in agriculture and horticulture, and has for twelve years been a very prominent member of the Fair Board. For the last three years he has occupied the position of general superintendent, which he has now managed with marked ability and success, and in connection with all the work which he has undertaken, has done much to place the Fair where it is at present as one of the most prominent in the Province. As a further evidence of his ability, Mr. Kydd has been selected by the Department of Agriculture to judge horses at various fairs, and also as a speaker at Farmers' Institute meetings.

FRUIT EXHIBIT AT SIMCOE

THE town of Simcoe," says Mr. T. H. Race, of Mitchell, "has the best fall organization that I know of outside the larger cities. And they believe that they have the best fall fair there, even including some of the cities. Having visited their Fair this fall, held on the 14th, 15th and 16th of October, I am not disposed to question their belief. In many senses the Norfolk County Union is a model Fair. It is, to begin with, purely educative in all its features. And it is conducted with a system and enthusiasm that might well be copied by every other fall fair management in the province. There is not a fakir allowed within the gates, nor a circus feature of any kind permitted to show upon the ground. And yet the crowds go in greater numbers to see the Norfolk County Union, purely for its agricultural sights and lessons, than any other show of its kind outside Toronto and London that we have visited this season. The third day's gate receipts this fall amounted to over \$1,700.

But I started out to speak of the fruit exhibit. The superintendent of this department was Mr. Albert Gilbert, and, by the way, every department has its superintendent, whose duty it is to see after that department and answer for its success or failure to a general superintendent, and through him to the chief management. The fruit was not well displayed owing to the loss of the horticultural building by fire last spring. But the fruit itself was a credit to the district and to the general high character of the exhibition. It had the advantage, of course, of the lateness of the season and was well colored. In Kings, Baldwins and Spys, although the exhibit was large and fine in each class, the quality was scarcely up to that in the same varieties grown in Ox-

ford, Perth and Huron counties. In Newton pippins and Talman sweets I had seen nothing any place to compare with the Simcoe exhibit. This statement applies to quality, size and beautiful coloring, which of course includes quality. Two other old varieties, the Spitzenburg and Yellow Bellflower, were by long odds the finest I had seen this fall. The Spitzenburgs were simply beautiful. Ben Davis, Ribston pippins and Alexanders did not compare with those same varieties grown further north, but Greenings. Fall pippins, Seek-no-further and Russets were extra fine. Taken altogether, the Simcoe apple exhibit was extra choice and selected with care and judgment.

In making up the collections I might point out that not enough attention was given to covering the season. Every collection, if not otherwise specified, is supposed to be for family use. Some of the collections shown at Simcoe, though made up of good varieties, did not start till late in the fall. Some had an early fall variety and then had nothing till winter. This feature will be corrected by Superintendent Gilbert in future.

The display of pears was very creditable, though it might be improved upon in so favorable a district as Norfolk county. The plum season was past, but the samples of peaches shown was convincing evidence that the district about Simcoe is especially adapted to peach growing. There were some very handsome specimens of late peaches shown by Mr. W. F. Kydd, the general superintendent, who has recently located at the west of the town, and has already a very handsome peach orchard and vineyard planted out and in full bearing. Mr. Kydd intends to demonstrate the possibilities of Simcoe as a peach district, and is already making an excellent showing."

GROWING RHUBARB IN THE CELLAR

BY

H. L. HUTT, B. S. A.,

O. A. C., GUELPH.

MOST farmers who have a garden at all usually have a good supply of the old fashioned pie plant or rhubarb. This vigorous growing plant provides a wholesome substitute for fruit early in the spring before strawberries come in. It is not generally known, however, that it can be made to produce its crop in an ordinary cellar during the winter, when it would be probably more appreciated than when grown in the usual way in the garden in the spring. The accompanying illustration shows the growth in March of a couple of roots in an ordinary vegetable cellar, after half the crop had been pulled.



FIG. 2700. RHUBARB GROWN IN A CELLAR.

The rhubarb plant makes its most vigorous growth under natural conditions early in the spring, when its large leaves store up in the thick fleshy roots a large amount of nutriment for the production of seed during the summer and growth early next season.

To get the best roots for forcing it is well to allow the plants to make their full growth with little or no cropping of the leaves the previous season, and above all not to allow them to exhaust themselves by throwing up seed stalks. The more liberally the plants are manured and the better they are cultivated the stronger the roots become and the better the crop they will give when forced in the cellar.

In preparing the roots for the cellar they should be dug up late in the fall just before the ground freezes hard. They should then be left where they will be exposed to severe freezing for three or four weeks. If placed under cover in an open shed, or where they will not be buried in snow, it will be all the easier to get at them when it is time to take them to the cellar. About Christmas time they may be put in the cellar and should be banked with earth to keep the roots moist. Care should be taken that the plants are set right side up, as at that time it is sometimes difficult to tell which side of the ball of earth the crowns are on. In the course of a few days the roots will thaw out, and usually enough moisture is thus given off to keep them fresh for some time. They should be watched, however, as they may need water once or twice during the winter to keep the soil moist. The warmer the cellar, the more quickly growth will start, and for the best results a rather low temperature, about the same as that in which potatoes are kept, is best. In a partially lighted cellar the leaf blades will expand very little, and all the strength of the root will go to the development of the stalks. If the cellar is light it is well to darken the part where the plants are kept. If the roots are strong and vigor-

ous, often stalks one and a half to two feet in length and two inches in diameter will be produced with little or no expansion of the leaf blade at the top. When grown thus in the dark none of the chlorophyl or green coloring matter of the leaf develops, and the stalks are bleached to a pinky white. When cooked and made into sauce or pies they turn a beautiful pink color, and are much finer in appearance and flavor than stalks which are

grown in the ordinary way in the garden. Cropping may begin as soon as the stalks are well developed, and may be continued for several weeks until the roots have exhausted themselves, after which they should be thrown out, as they are of little use for growing again.

We would suggest that our readers try growing two or three roots this winter, and let us know the results next spring.

JOHN EVELYN

PATRON OF HORTICULTURE, PHILOSOPHER, PATRIOT.

GARDENING and nature study seem always to have been the delight of the most refined minds, and among these we find John Evelyn, of Wootton, Surrey, England. Born in 1620, he lived in a remarkable age, the times between Queen Elizabeth and Queen Anne. He was a "student of trees and plants and living things, cherishing beside these the history of the ancients, and a critical appreciation of music and its masters." As is evident from his famous diary, he was a scholar, a worker and a gentleman.

Shortly before Evelyn's day, says the *Journal of Horticulture*, there had existed a great taste for gardening among the gentry, and it was the practice to strew the floors with sweet smelling herbs and to have fragrant flowers in the bedchambers. New flowers and fruit trees were imported from the Continent; gardens were carefully laid out "with quaint conceits of mazes and strangely cut Yew hedges." Deer parks abounded, and hunting and hawking were the favorite amusements of country life. Gerarde, we know, had despatched plant collectors to the Levant in 1590, and others followed his example. But the period of the

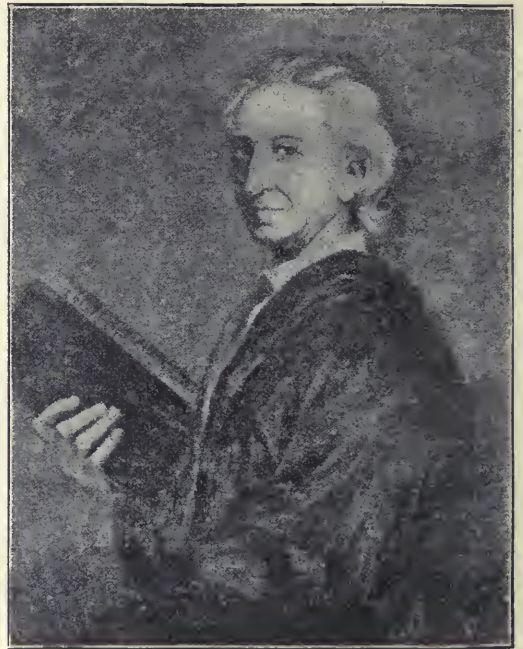


FIG. 2701. JOHN EVELYN, (1620-1706).

Civil War greatly destroyed the propensities of the Elizabethan reign, nor were they revived till the Restoration of King Charles II. to his throne. John Evelyn, the boy, was sent to his grandfather's home at Lewes

at the age of five, when he started his schooling. At seventeen he went to the University of Oxford, and from there he entered the Middle Temple, and for a time devoted himself to law. The riots in London, incidental to the period, drove the young man to Holland, though that country was also in arms, and he even served as a volunteer, but in a month or two was again back at the Middle Temple. In order to escape being pressed to take the Solemn League and Covenant, however, he was obliged to make a four years' tour, from 1643, through France, Italy and Switzerland. During his residence in Paris he became acquainted with Sir Richard Browne, at that time British Ambassador at the court of France, and in the summer of 1647 Evelyn married Sir Richard's daughter; settling some time afterwards at Sayes Court, in Kent, which he rendered famous. It was at Sayes (for a time occupied by Peter the Great of Russia after Evelyn left it) that he made those experiments and observations which he gave to the world in his *Gardeners' Almanac* and *French Gardener*, his ever-famous "*Sylva: a Discourse on Forest Trees*," a monumental work, indeed, and a grand record by itself to his wisdom and perspicacity. But with these he published also a work entitled "*Pomona*," dealing with the orchard, nor did he forget a pamphlet on "*Salads*." His "*Terra; a Philosophical Discourse on Earth and Vegetation*," published in 1668, is read with the very greatest interest at the present day. His "*Fumifugium*," of 1661, dealing with the smoke nuisance of London, again asserts the far-seeing mind, pregnant with reforms. But while Evelyn was so much a gardener and natural philosopher, "his foible was omniscience," and at the king's request he produced a work on "*The Origin and Progress of Navigation and Commerce*." The statements contained in the work being

such as greatly incensed the Dutch, with whom England was then much at war. Besides the forenamed books and pamphlets, Mr. Evelyn published others, respectively entitled "*Sculptura*" (1662), a treatise on the art of engraving; "*Numismata, a Discourse on Medals*" (1668); and his "*Parallel of the Ancient Architecture with the Modern*" (1664), as well as others on subjects of lesser importance, including translations. His diary shows him to have been a regular attendant at the court of both King Charles and James II., and though he was so studious and inclined to seclusion, yet he constantly mixed up with the society and fashion and intellect of the period, all of which then concentrated in London. His diary is not so complete as that of Pepys, who was his close companion, but it is the product of a finer mind, and certain passages, like his description of the great fire of London, could not be improved on, as examples of descriptive English. After the destruction of so much of London by the fire, he lent his counsel and assisted Sir Christopher Wren and those who attended to the remodelling and rebuilding of the city. The social history of Evelyn's time shows that between London and the country the distinction was sharply marked. The country gentlemen seldom came to London, but busied themselves in cultivating their estates and in administering justice in their neighborhood. The provincial towns were the social centres for the district. They were a rude, uneducated race, "who drank hard and swore freely," but in their rough way they did their duty, and were revolted by the sight of the vices of the court and capital. The country clergy were hardly more lettered than their squires; the learned and eloquent clergy nearly all came to London. John Evelyn died one year before the accession of Queen Anne, at the age of 86 years.

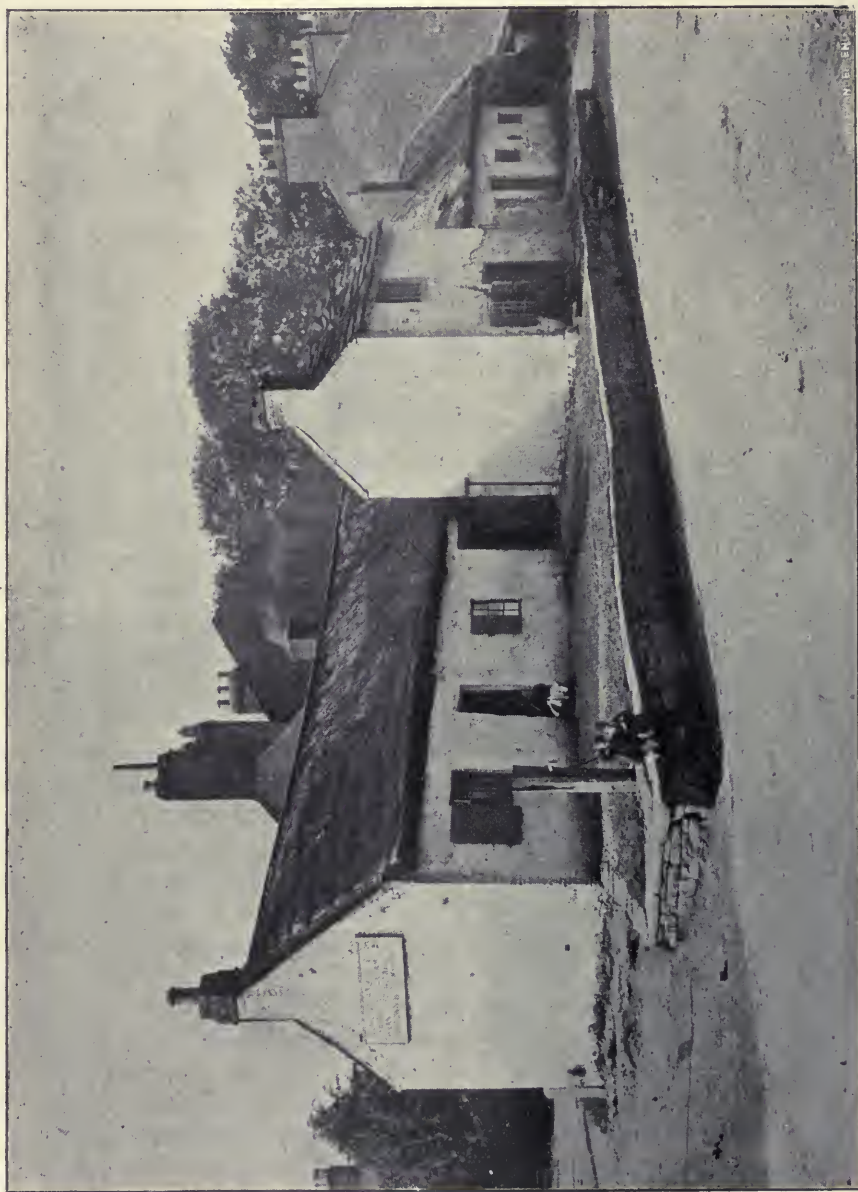


FIG. 2702. CHARACTERISTIC ENGLISH VILLAGE HOUSES.

AN ENGLISH FRUIT FARM

BY THE EDITOR.

HAVING an introduction from Mr. A. E. Kimmins, of Winona, to his uncle, Mr. A. J. Thomas, of Bargainhill, near Sittingbourne, in East Kent, we went down by a Thames steamer to Gravesend, and from Sittingbourne by carriage, four miles, to his lovely country home. The surroundings are picturesque, the land being somewhat hilly and well clothed with orchards and hop yards. On every side, as we approached, were large plantations of cherry, plum, dwarf apple and pear trees, reminding one of the fruit districts of Ontario, except that with us such plantations are young, while in England they are comparatively very old.

"I have an orchard of black cherry trees," said Mr. Thomas, "which must be nearly two hundred years old, for they were old trees in my grandfather's time."

To us it seems doubtful if any Canadian cherry orchard will ever endure to such an age. We have many cherry trees that have reached the age of fifty years, but they are already beginning to fail.

The lawn and hedges about Mr. Thomas' house were all in perfect trim, and such beds of immense pansies as we have never seen in Ontario were placed about in bold relief. What a delightful retreat from the great city of London! "I would not live amid the smoke and dust of that city for anything you could give me, so long as I have this country home," said Miss Thomas, and we heartily re-echoed the sentiment, applied even to our own country home in Ontario.

"What variety of cherries do you cultivate?" we enquired.

"Chiefly the Bigarreaus," said Mr. Thomas, "and of these the chief are the

Amber, the Napoleon and the Yellow Spanish."

"Do you not cultivate the Kentish varieties of sour cherries?"

"Not of late years," said he. "We find more money in growing such kinds as Governor Wood, the Bigarreaus, and the Black Ox Hearts."

Walking through his great cherry orchards we were struck with the enormous size of the trees, and could easily credit them with yielding an enormous crop in favorable seasons.

"Do you cultivate your cherry orchard?"

"No," said he, "not after the trees reach bearing age. Then we seed down the ground to a sheep pasture."

"What are your prospects for a fruit crop this season?" we asked, seeing that the trees in most cases appeared to show very little fruit.

"The blackest we ever knew," said he. "The severe spring frosts, and the backward weather which has prevailed since, have combined to destroy nearly our whole fruit crop this season, so that, unless prices rule very high, it will not even pay for the harvesting. Nearly all fruits are destroyed alike by the frost, pears, plums and apples, as well as cherries. In consequence this ought to be a most favorable season for you Canadians to ship your fruit in to this country."

"How many acres of orchard have you?"

"About one hundred and fifty; mostly devoted to cherries, pears and apples. The apples are grown for the most part on the English paradise stock, and are planted 9 x 12 feet apart."

The top grafting done by Mr. Thomas is

mostly crown work, such as we have often described in this journal, and he showed us samples of this work, which were a perfect success.

In pears Mr. Thomas has tried many varieties, but has found the Pitmaston Duchess, grown as a dwarf, the best commercial variety for profit, and he has a large orchard of it. The Bartlett (Williams) he does not grow to any extent; he prefers Dr. Jules Guyot for market purposes, because it is

larger and more attractive, although it scarcely equals it in quality.

After enjoying a cup of tea with our host we came away regretting that we had not more time to study the details of his methods, and concluding that the life of an English country fruit grower in the south of England was, after all, not very much different from that of the Canadian fruit grower, and that the chances of success was rather in favor of the latter.

THE APPLE MARKETS

LIVERPOOL.—Messrs. Woodall & Co. write: Receipts show a smart advance, being 80,395 barrels; but, far from proving excessive, it would almost appear that the quantity was scarcely sufficient to supply requirements. In the early part arrivals from New York were cloudy and unattractive, but later showed some improvement. Maines were generally satisfactory, though many of them were wanting in size. Canadians were excellent in quality, and have taken by far the first position on the market. It is regrettable that so many varieties, in such small quantities, are being shipped, as they seldom bring their proper value, and the expense of samples so much reduces the net results. It is a matter for shippers to find if some arrangement can be arrived at by which these small parcels can be grouped together, and so avoid unnecessary labor and expense. At the opening there was rather a quiet tone, consequent on the generally unattractive appearance of what was offered, and there was a decline of 1s. per barrel, but this was fully recovered later, and the sound condition and good quality of all arrivals resulted in an active market, which closed at yesterday's sales at last week's full prices, to an occasional advance on choice parcels.

OTTAWA.

"THE McIntosh Red is the best family apple on the market." So said G. W. Hunt, of the Ottawa Fruit Exchange.

"This is a first-class table apple, its season running from 1st October to 1st May," he added. "The apples are popular not only in Canada, but on the other side as well. Chicago will take all of this variety we can supply at \$2 to \$2.50 f.o.b. I shipped a car to Winnipeg the other day at \$2.75 f.o.b., and immediately on arrival of this I got a wire back asking for 500 more.

"The quality of all apples coming in this year," continued Mr. Hunt, "is exceptionally good. There is no scab even on the McIntosh. This variety comes mostly from the St. Lawrence, about Iroquois. From the St. Lawrence district we also get Snows, Ben Davis, Russets, and a few Kings."

Mr. Hunt says over half the apples received in Ottawa this year have been shipped in boxes. Even a lot of No. 2 apples are received in this form. "The box we prefer," says Mr. Hunt, "is one 10 x 11 at the end, and 22 inches long." Mr. Hunt reports having received 85,000 barrels this season to date, as against 40,000 for the same period last year. — *unn.*

APPLE BARRELS SCARCE.

THERE is a great scarcity of apple barrels in all parts of the province, and as a result thousands of barrels of apples will not be shipped or take noff the hands of the growers. The coopers cannot get material to make the barrels, and are unable to supply more than half the orders they have received, and what is still worse, for the buyers at least, is the fact that the prices of barrels has advanced from 60 to 70 per cent. during the year. Mr. Sherrington, salesman for the Walkerton Fruit Growers' Association, is one of the many shippers who have difficulty in filling orders owing to the lack of barrels. In the county of York thousands of barrels are stored in outbuildings awaiting shipment. As to the abundance of the crop, one orchard which in the early part of the season gave promise of

yielding 75 barrels, will yield fully 200 barrels of fruit suitable for the export trade. This is in addition to 40 or 50 barrels fallen and immature fruit suitable for cider making and immediate consumption. Four trees of the Ben Davis variety yielded 36 barrels, or an average of nine barrels per tree, a remarkable showing, and one which it is doubtful has ever been surpassed. G. W. Gillbank, of Hagerman, representing a leading commission house, has purchased some 400 barrels of apples in York county at an average price of \$1.10, which figure Mr. Hood has also disposed of his output. In addition to a fine apple orchard, Mr. Hood has also ready for shipment 70 barrels of pears, which are quoted at the local market at \$2 per barrel.

\$1,500,000 FOR NOVA SCOTIA.

OF the apple crop of Nova Scotia, which this season will give 500,000 barrels for export to England, 155,000 barrels have already been shipped, the steamer St. John City, which sailed Saturday, taking 18,000 barrels. The remaining 350,000 barrels will be shipped between now and the middle of March, when the Australian apples begin to arrive. The average price netted by the Nova Scotia orchardists this season is \$3 per barrel, which will make one and a half million dollars this year for the apple growers of this province, who are located in

the counties of Kings and Annapolis. The Nova Scotia government's display of winter apples in the Crystal Palace, London, is creating much interest among British fruiters and the public. The exhibit is tastefully arranged, and the big court is filled with apple scent. Some Blenheim's measure a foot in circumference. The Hon. Mr. Drysdale, who himself has 200 barrels for export, says the export trade this year is over half a million barrels. Nova Scotia Ribstone fetched twenty shillings last week against the usual eighteen.—*Mail-Empire*.

AN OBJECT LESSON IN SPRAYING

BY T. H. RACE, MITCHELL.

THE most striking object lesson in spraying that ever came under my observation was afforded this fall by a drive of about two miles out from the town of Simcoe. The photo-engraving given below represents very faithfully the difference between apples sprayed and not sprayed. Just outside the town of Simcoe is an apple orchard of forty acres belonging to a Mr. Quin Fick. Immediately across the road is another of twelve acres now owned by Mr. R. H. Johnston. Both these orchards have been planted between 25 and 30 years, and neither of them up to this year had ever been sprayed. Of the two the 40 acre orchard had received perhaps the better care; both had been pruned occasionally and both had borne ordinary crops. One year ago Mr. R. H. Johnston, an enterprising resident of the town, and a man of considerable experience in buying and shipping apples, bought the property on which the twelve acre orchard stands. During the month of February of this year he went among the trees and pruned them out severely, at the same time scraping all the old loose bark off. In the early spring, before the leaves came out, he gave them a thorough spraying with lime and bluestone, in the proportion of about 12 lbs. of bluestone and 18 lbs. of lime to 50 gallons of water. Asked why he used so much lime, he replied that he believed it loosened the old bark and in several ways benefited the tree. At all events he said it did no harm and had a cleansing effect. After the leaves were out he gave a second spraying of lime and bluestone, with Paris green and white arsenic added. This was repeated after the blossom had fallen, and nothing more was done till the fruit was ready to pick, except plow

the ground and sow it with cow peas. Altogether Mr. Johnston used about 1,700 lbs. of lime, 430 lbs. of bluestone, 20 lbs. Paris green, and 10 lbs. of white arsenic on his twelve acre orchard. On being asked why he used both poisons in such large quantities he replied that Paris green is oftentimes impure and uncertain, and he wanted to make a sure job of it. This latter, it seems to us, would have been accomplished with the arsenic alone even in less quantities.

Now as to results. This fall, out of thirty-five barrels of Baldwins, picked from the first rows, there was about one bushel of culls. The Spys would run even a less percentage of culls than that. From his twelve acres Mr. Johnston would sell nearly eight

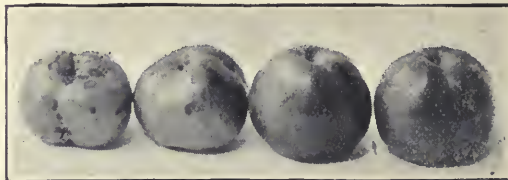


FIG. 2703. APPLES, UNSPRAYED AND SPRAYED.

hundred barrels at about \$2.50 per barrel, while his close neighbor, Mr. Fick, was selling his whole 40 acre crop at 75 cents a barrel in the orchard. The product of one orchard went to Chicago as prime Canadian fruit, while the other went to the local canning factory.

Prof. Zavitz, of Guelph, and myself walked through both orchards and picked what we thought to be a fair sample of the fruit grown in each. These I had photographed, and are shown in the cut above. I do not believe that a single barrel of No. 1 apples could be gathered in the whole unsprayed 40-acre orchard. And I do not believe there would be ten barrels of culls

found in the whole crop picked from the 12-acre sprayed orchard. It will be noticed, by referring to the samples photographed that the spotted apples show a light color while the other two are much darker—a fine high color. This is true of the crop in each orchard throughout.

The only question is as to whether the same results could not have been obtained with a less quantity of material used. With Mr. Johnston it seemed to be not a matter of quantity or expense. It was an experiment he was engaged in and a sure result he was working for.

PRUNING PEACH TREES

THE unusual number of questions upon the pruning of fruit trees and vines indicates that the following report of experiments in pruning peach trees, conducted by Prof. J. C. Whitten, of Missouri Experiment Station, and published in the Experiment Station Record of September, will be of interest:

The experiments followed the severe winter freezes of 1898-99 in pruning back peach trees. The cold had killed practically all the fruit buds, while the wood of the trees was badly discolored to the heart. In the experimental work some of the trees were left unpruned for comparison. With others the new wood was pruned back about half, as is the customary yearly practice. In the majority of cases with the older trees the limbs were cut back into 3 or 4-year-old wood, leaving arms in the main branches 3 to 5 feet long. Most of the pruning was done in February, soon after the freeze, though in some instances it was continued until the leaves were just starting. The following spring the trees which were not pruned at all started into leaf growth first. They made a feeble growth during the summer, the growth being confined principally to the tips of the branches. There was almost no indication of growth in the body of the tree. Trees that had been pruned back

severely were rather tardy in beginning growth in the spring. When growth finally started, however, it was very vigorous and continued throughout the season, some 6 to 9 feet of new wood being made, which ripened up well during the season. Old trees that were cut back to the ground leaving only a stump died in many cases. Those that did sprout made an unsatisfactory growth. Trees pruned back by cutting away 1-3 to $\frac{1}{2}$ of the 1-year-old wood also made unsatisfactory growth, but little better than where the trees were left unpruned entirely.

The best results were secured in pruning back into the 2 to 4-year-old wood, the severity of the cutting depending upon the age and vigor of the tree. It was observed that trees with smooth, bright looking bark sent out branches from their trunks more readily than those whose bark was thick, rough, and dull colored. There was practically no difference in the results obtained in cutting back the trees at different times from just after the freezing until the leaves had made some growth. In the rejuvenation of orchards thus severely pruned, good cultivation to properly aerate the soil in spring and to conserve moisture during the summer is advised.

A PLEA FOR QUALITY OF FRUIT

IN an address at the recent annual meeting of the American Pomological Society, held at Boston, Mr. G. Harold Powell gave some excellent advice in regard to growing fruit of first class quality. Many of the points which he brought out were noted with approval by Mr. W. A. McKinnon, chief of the Dominion Fruit Division, and are given here for the benefit of Canadian fruit growers. Mr. Powell recommended as summer apples for the United States, Red Astrachan, Sweet Bough and Williams; as autumn apples, Gravenstein and Alexander; for winter, the Greening, the Newton Pippin, which he stated had sometimes sold as high as \$20 a barrel, the King, the Spitzenburg, Baldwin, Spy and McIntosh Red. He recommended top grafting the King on two-year-old Spys, stating that in this way a vigorous tree bearing good crops would be obtained.

Regarding the Ben Davis, Mr. Powell made a very cutting criticism, declaring it had only one quality to recommend it, namely, its color; and stating that no fruit would take a prominent place in our markets or would continue to be a profitable one for growers which depends upon a single virtue for its sale.

The Champion grape received a similar castigation. Its only virtue is its earliness, and this Mr. Powell thinks has made it one of the worst enemies of the grape grower, inasmuch as the price of the Champions, at first very high, drops almost to nothing. The last price of the Champion, or what the public are willing to pay after they have become acquainted with its wretched quality, fixes the price for all other grapes which follow, though they are infinitely superior in quality to the Champion. In other words, rock bottom prices having been once fixed, it is impossible to get back to normal prices.

Mr. Powell spoke rather more kindly of the Elberta peach, but is of the opinion that it also is not an unmixed blessing to the fruit growers. It is a splendid shipper, but has no quality.

The conclusion to be drawn from Mr. Powell's remarks is that whatever transient advantages may be obtained by the grower from the production of inferior varieties, it is to his permanent advantage, and it is his only wise policy to produce the highest quality in each sort of fruit which he places on the market.

Striking testimony to the value of such advice is furnished by some reports of fruit sales just received by the Fruit division from London, England. On October 7th there were sold a large number of half cases of California and other American pears, including about a dozen varieties. The Seckel, which is generally regarded as a pear of the highest quality, though small in size, sold for 12s.; the Glout Morceau for 13s. 6d.; the Calabash (similar to our Bosc) for 11s.; the Comice (one of the varieties recommended by the Fruit Division) for 11s. to 12s. If we contrast these prices with those for fruit of inferior quality we must conclude that the Englishman wants only the best fruit and that he is prepared to pay for it. Bartletts, which are certainly above medium quality, fetched 6s. to 7s.; Anjou, 9s.; Clairgeau, 7s. to 7s. 6d.; Duchess, 3s. 9d. to 4s.; Hardy, 2s. 6d. to 3s. 9d.; and Keiffers, which it is only fair to mention were "wet," only 10d. to 1s. a cask. Large quantities of Canadian apples, sold on the same day, brought all the way from 10s. to 25s. per barrel (the latter figure being for Ribstones), with the great majority at 15s. to 16s. On October 12 half cases of Comice pears were sold by the same firm for 11s. 6d., while the Duchess variety fetched only 4s. 3d., these being

the only two sorts of pears handled that day. The highest figure for apples on that date was 23s., again to the credit of No. 1 Ribstons, while the lowest prices were 12s. for No. 2 Fall Pippins, and 13s. for No. 2 Ribstons and Gravensteins. The wide variation of 10s. per barrel, between No. 1 and No. 2 Ribstons, is particularly worthy of notice, indicating as it does that quality is sure to tell.

BOXES FOR APPLES.

In view of the scarcity and high price of apple barrels this season, and of the fact that in some districts farmers find it impossible to procure barrels at any price, the Fruit Division recommends the general use of boxes. These can be had, knocked down, at almost any saw mill for about eight cents each, and they should not cost more than ten cents each made up. As these boxes hold about as many apples as a barrel, they will be found much cheaper than barrels at fifty cents and upwards. The boxes should be well and strongly nailed, and should hold about 40 pounds of fruit. The dimensions

of these boxes, used by the Grimsby shippers, are 9 x 12 x 18 inches, while the British Columbia standard box is $10\frac{1}{2} \times 11\frac{1}{2} \times 22$ inches, these being inside measurements in both cases. The boxes should be made of strong material, not less than $\frac{5}{8}$ of an inch thick for the ends, and not less than $\frac{3}{8}$ of an inch for the sides; the tops should have strips across the ends to prevent the weight of other packages, piled on top, from bearing directly on the fruit. It is also usual to leave open corners at the top and bottom for ventilation. Little or no packing material should be used, as purchasers like to find the package quite full of fruit. A sheet of cardboard at the top and bottom will materially reduce the amount of injury from bruises. But it should be remembered that even in this year of scarcity of barrels, it will not do to ship anything but first-class fruit in boxes, as the reputation of the Canadian box and of the Canadian trade in general will greatly suffer if inferior or common fruit is exported in the box or any fancy package.

THE APPLE MARKET

“ONE of the heaviest crop of apples ever before grown,” said Mr. Chas. Hart, of the firm of Hart & Tuckwell, when speaking of the big yield in Nova Scotia. Mr. Hart has just returned from the Annapolis Valley, one of the greatest apple producing sections of Canada, where the famed Gravensteins grow to perfection, and this year they are of excellent quality. But this season a large proportion of the crop consists of Kings and Ribstons of **very fine** quality. Mr. Hart during his recent visit to Nova Scotia purchased about 35,000 barrels of the best winter varieties. In this

market sales are reported of 5,000 barrels of choice winter fruit to arrive at \$2.50 to \$2.75. Other sales are reported to us of 250 barrels of choice fruit at \$2.85; 200 barrels at \$2.80; 100 barrels at \$2.75, and 300 barrels at \$2.80. Several car lots of good seconds are reported at \$2.25 to \$2.60. For round lots of apples on this market, No. 1 is quoted at \$2.75 to \$3.15; the latter figure being made for 100 barrels. Advices from New York state that Armour is in the market for apples in New York State, paying \$2.00 to \$2.25 per barrel for No. 1 and No. 2. —*Montreal Fruit Trade Bulletin.*

TENDER FRUITS AND TRANSPORTATION

FRUIT Inspector Scriver, who was stationed at Winnipeg for some time, has returned to Montreal greatly impressed with the prosperity of the west and its possibilities as a market for choice fruit. After a careful study of the trade in Winnipeg, he has come to the conclusion that the fruit growers of Eastern Canada will be able to capture and retain a good share of the western business, if they can only lay down their goods in as good condition as the fruit from California, Oregon, Washington and British Columbia. The western fruit is larger and higher colored, but has not the juiciness and flavor of the eastern article, and as the greater number of residents of Winnipeg came originally from Eastern Canada, they naturally prefer the fruit to which they have been accustomed.

The Winnipeg dealers are practically unanimous in demanding that all fruit, particularly the tender varieties, shall be packed in boxes similar to those used by Californian shippers. Hitherto Ontario peaches, pears, plums, grapes, etc., have almost invariably gone forward in baskets, which are always objected to in Winnipeg. None of the tender fruits except grapes have given results at all satisfactory when shipped in baskets. In every car of eastern fruit examined by Mr. Scriver he found from 40 to 100 baskets broken and the contents ruined. This in itself would go a long way toward wiping out the profit on a shipment. On the contrary, not a single box was found in any carload of western fruit. In those cars every tier of boxes is braced as soon as completed with stout uprights, and there is practically no injury to the fruit from pressure or jarring. This fruit is, of course, picked before fully ripe, and carefully wrapped in paper so as to stand a long trip. Even in

the case of apples the Winnipeg merchants want tender fall varieties, such as Alexanders, Snows and McIntosh Reds, and even fancy winter apples, like Spys and Baldwins, put up in the forty pound boxes.

The matter of packages can be easily remedied, but the transportation problem is a far more serious one. Mr. Bunting, president of the Ontario Fruit Growers' Association, pointed out a couple of weeks ago that the freight on a carload of fruit from Hamilton to Winnipeg is nearly \$200, and the express rate \$400. An illustration of how these rates work out was given by Mr. Scriver. A consignment of pears, on which the express charges amounted to 60 cents per basket was being sold in Winnipeg while he was there for 75 cents per basket. In other words, the express company got four-fifths of the selling price of the fruit. It may be remarked that these pears would have brought at least 25 cents per basket in Hamilton or Toronto. The lake and rail route, say via Sarnia and Fort William, is about 18 cents per basket cheaper than all rail, but this involves handling the fruit four times oftener, and the number of baskets broken owing to rough usage is so great that the cheaper route is really no advantage.

These transportation rates would not be considered so extortionate by eastern shippers if the cars were rushed forward with all possible despatch. But they are not only delayed on the road, frequently owing to the congestion of freight at Winnipeg, cars of tender fruit are left standing for days in the yards before they are run up to the city. Nearly all the large wholesale establishments have switches right up to the rear of their buildings, still they each find it necessary to keep a man who does nothing else except hunt up missing cars and try to get them switched into position to unload. Mr.

Scriver mentioned a case of this sort in which he was particularly interested. A car of Fameuse apples from Hemmingford, Que., arrived at Winnipeg on Monday, Oct. 19th, and as this shipment was from his own country, Mr. Scriver was particularly anxious to see it unloaded before leaving for Montreal on the following Saturday. However, there was no sign of the car up to Friday, when at his special request an engine was sent out Saturday morning to the yards at St. Boniface to bring the car into the city. The engine returned with the information that the car could not be found. Mr. Scriver left Winnipeg on Saturday afternoon, before the arrival of the car, which would certainly not be brought in until Monday, making a week at least that these tender apples had been lying in the yards.

EASTERN APPLES IN WINNIPEG.

Fruit Inspector Scriver says that the quality of the XXX apples shipped to Winnipeg from the east has been very good, and merchants expressed themselves as well pleased with this season's business. Apples were selling at about \$4.00 per barrel, with fancy varieties still higher. Fancy Fameuse, from Quebec, which are this year exceptionally large and free from scab, were in good demand at \$6.00 and Ontario Snows at \$5.00. Retailers and consumers in both city and country seemed to want only first-class fruit, and were willing to pay for it. The same could scarcely be said of the middlemen who naturally tried to buy in the east at as low a figure as possible. Exporters to the European markets are paying as high as \$2.25 per barrel, said Mr. Scriver, and consequently Winnipeg buyers could not get the best fruit at \$1.85, which they had been considering as about the limit in price.

There was some complaint in Winnipeg that packers were filling the barrels too full, with the result that the pressure in heading bruised the tender fall varieties to such an extent that many of the apples at the top were found to be worthless on arrival. The packers were evidently afraid of the barrels going "slack," but they rather overdo their precautions to prevent that undesirable condition.

In speaking of the apple trade in general, Mr. Scriver mentioned that this year especially there is a good demand for XX apples, and there would be a much greater call for them if buyers could be sure of what they were getting. At present this grade is very uneven in quality, and it is a question if the Fruit Marks Act should not more clearly define its characteristics. Some large packers are putting up XX fruit that is nearly equal to XXX, and they find it a hardship to compete with all sorts of culls, which may now be legally marked XX.

SHIPPING FRUIT IN BOXES.

Fruit shipped in boxes or cases does not always escape bruising, because there is frequently considerable bulge to the tops, and when the boxes are stacked up in the usual way, bottoms downward, the weight of the upper layers causes considerable pressure on the fruit. More especially is this the case when the boxes are not placed with sufficient care to ensure that each rests on both protecting strips of the one below. It has been suggested by the Fruit Division that it might be better to place the boxes on the sides in the car, as in that way there would be no weight on the bulged portion. A firm of fruit packers and exporters in Burlington, Ont., is now testing this plan of shipping, and the results of their investigations will be awaited with interest.

GROWING AND MAINTAINING ORCHARDS

PROF. I. P. ROBERTS, CORNELL UNIVERSITY.

IF a hole be dug in the hard field, the soil will show indications that it has lost much of its original humus. Few or no natural drainage channels will be found. The soil, instead of being light and loose, is sealed, and appears "harsh and dead." If seeds be planted it is soon discovered that the soil too often has not the power to force the embryo plant to the surface nor to push it to a vigorous growth and mature fruitage. The vegetative growth is too frequently dwarfed, which results in lack of power to bring all of the fruit to perfection. Half of the fruit on the tree not infrequently shows unmistakable signs of semi-starvation.

That this is the case is not strange if it is considered what has been taken from the soil in fifty years of cropping. Let it be supposed that during the 50 years there have been taken off of each acre ten crops each of oats, wheat and corn and 20 of hay. The following table shows the amount of grain and roughage removed in 50 years, and the value of the plant food approximately:

AIR-DRIED MATERIAL REMOVED IN 50 YEARS.

Per acre.	Lbs.	Crops.	Lbs.
Oats, 31¼ bush.	32	10	10,000
Straw, 1,500 lbs.	—	10	15,000
Wheat, 16 2-3 bush.	60	10	10,000
Straw, 2,000 lbs.	—	10	20,000
Corn, 40 bush.	60	10	24,000
Stalks, 10 p.c. moisture, 4,000 lbs.	—	10	40,000
Hay, 1½ tons, 3,000 lbs. —	—	20	60,000
Total			179,000 or 89½ tons.

PLANT FOOD CARRIED OFF BY 50 ROTATIONS.

	Lbs. in round thousands.	Nitrogen lbs.	Phosphoric acid lbs.	Potash lbs.
Oats, 10.	165	69	48	
Straw, 15.	69	42	265	
Wheat, 10.	138	78	49	
Straw, 20.	240	44	126	
Corn, 24.	386	137	89	
Clover, 40.	416	246	792	
Mixed hay, 60	882	246	792	
Total	2,296	732	1,929	

PLANT FOOD CARRIED OFF BY 50 ROTATIONS.

	No. of lbs.	Cost p. lb.	Value.
2,296 nitrogen	12½c		\$287 00
732 phos acid.	4½c		32 94
1,929 potash.	4½c		86 80

Grand total of the value of the plant food carried off 50 years' rotation from each acre, as above, \$406.74.

In 1895, among other investigations, an attempt was made to determine the amount of plant food used by a single apple tree: 1. Plant food contained in the tree when dug up, including branches, trunk and roots; 2. plant food removed by 20 average crops of fruit; 3. plant food removed by the leaves. It was assumed that an acre would grow 35 mature trees and that all of the leaves were blown off the land, which, of course, is not a fair assumption.

The 20 estimated crops of apples removed \$147 worth of plant food. The trees contained \$70 worth of plant food, and 20 crops of leaves \$160 worth of plant food. If it is assumed that all the leaves remained on the ground, the total value of the plant food contained in the wood and removed by the apples was \$217 per acre. If one-half of the value of the plant food is in the leaves for the 20 years to be taken, the value per

acre of plant food used by the orchard would be \$297 per acre.

In either case it is seen that an orchard used more than simply sunlight and water. From many of the mature orchards, harvest crops other than apples have been removed continuously for from 20 to 50 years, in addition to the apples harvested. Is it any wonder that many of the mature orchards are far from vigorous, shy of bearing and perfect but a small per cent of their fruit? While it is true that many of our fields still contain vast stores of plant food, it is equally true that the cream of the land has been removed and that the remaining plant food is not readily available, in other words, it is tough.

What are the conditions the fruit grower meets when he attempts to grow a young orchard? He finds that most fields have been depleted of large quantities of the most easily available plant foods. For 50 years or more, double, often three-fold, more plant food has been removed than has been returned to the soil. The soil and subsoil too have often become compacted, hard and unresponsive. The drainage channels have been obliterated and can only be restored by long tap-rooted plants or drainage. The humus so necessary for good physical condition of the surface soil and for conserving moisture and for promoting chemical and biological action is deficient or almost entirely wanting. Is it any wonder then that heroic treatment, such as J. H. Hale gives his orchards, is necessary if the young trees flourish and fruit abundantly?

Good fruit is on the average salable at remunerative prices home and abroad. When well managed, the orchard areas are by far the most profitable portions of the farm. If, then, we set new orchards we should make the conditions similar to those

which prevailed 50 or 75 years ago. This may be most easily accomplished by growing tap-rooted and leguminous cover crops, assisted in some cases by under-drainage. These will tend to promote drainage of surplus water, conserve moisture, make the soil more friable, add humus, promote chemical and biological action, and incidentally add nitrogen to the soil and oust some of the lazy potash and phosphoric acid.

Frequent and intelligent tillage will help materially in aerating the soil. It may be made to conserve moisture, liberate plant food and in all ways promote the comfort and well being of the growing or fruiting of trees. The vigorous, healthy growth resulting from cover crops and tillage makes the trees more resistant than they would be if they were uncomfortable, hungry and thirsty. On most of our soils from this on, profitable fruit growing must be founded on cover crops and tillage, supplemented, in some cases, by drainage and fertilizers.

Doctor the soil before you doctor the tree. Remove the cause, and the effect disappears. You can't cure rum blossoms with vaseline, you must break the demijohn; start the orchard where nature left off, and not where the renter did. The rivers run to the sea, overflowing the city and plain, yet the sea is not full. The waters return to the land, but the land cannot contain them. The roof of the natural reservoir is sealed because of ignorant tillage; the surface is like a leaky roof, which sheds part of the water and allows a part to pass through. The waters hasten to their home in the sea, since they are not welcomed by the land. The reservoir runs dry, the plants are sick unto death of thirst and hunger, and the bugs foreclose their cut-throat mortgages.—*Am. Agriculturist*.



DECEMBER NOTES

BY

WM. HUNT,

SUIT. GREENHOUSES, O. A. C., GUELPH.

PLANT PROTECTION.—The first or second week in December is usually early enough to attend to the matter of giving some protection to plants and shrubs of questionable hardiness in the garden. As a rule the tendency on the part of plant growers is to be too good natured in this respect. In many cases the covering is applied too early in the season before the wood has had time to ripen and partially harden, or the plant had time to attain its normal winter condition; and in many cases the covering is altogether too heavy and close for the well being of the plant which it is intended to protect. Take for instance some of the more tender varieties of out door roses of questionable hardiness, such as La France, Fisher Holmes, and others of that type that are more or less of a delicate nature, especially in northern sections of the country; or take the more tender varieties of the Altheas or Rose of Sharon shrubs, of the beautiful dwarf though somewhat delicate Spirea, Anthony Waterer, and similar kinds of shrubs, these

although tender do not require a very heavy covering during winter to protect them. A good heavy mulch of manure placed over the roots of the plant after the ground has become frozen slightly, and a light covering of straw or long sedge grass, bound loosely around the growth of the plant, will be found of much more benefit than a very heavy covering of the same material, which latter would effectually exclude any circulation of air around the growth, as well as induce and retain oftentimes an excess of moisture. This will bring rot and mildew into the growth during periods of alternate frost and thaw, besides affording—especially if applied too early in the season—a splendid harbor for rats and mice that will do a great deal more harm than severe frost will to the plants. Rats and mice usually seek out their winter quarters before severe weather sets in, and are seldom troublesome if the winter covering of plants is withheld until real winter weather sets in.

The winter protection of some of the more

tender border plants, such as Hollyhocks, biennial Campanulas, etc., does not require a close heavy covering of manure. A few pieces of thick brush wood or pine boughs, with a few leaves placed under or about amongst the brushwood, is a far better and a more natural protection than the heavy covering before mentioned. The best collection of the *Campanula media* or biennial campanula that I have ever seen was brought through the very severe winter of 1884-5 with only a covering of brushwood and a sprinkle of leaves, aided doubtless by the heavy and continuous covering of snow experienced that winter. In sections where the latter natural covering can be relied on there is no doubt no better plant protector, but in Southern Ontario, where nature's covering of snow is fickle and uncertain, a light covering such as I have mentioned is certainly beneficial to tender plant life, more especially in late winter and early spring when plant life is first exposed to cutting winds and bright sunshine, two very trying factors to tender plant growth at that season.

Several other kinds of winter covering can also be made effectual for plant protection. Tea chest matting, or mats made of sedge grass or rushes make good plant protectors. Or an apple or flour barrel without a top, turned bottom up over a rose bush or shrub, will afford ample protection as a rule. A light covering of straw or leaves placed around the plant, before the barrel is put over it, will materially assist its effectiveness. But barrels are unsightly objects on a lawn, pine boughs and even straw being much less unsightly and equally effective if carefully placed. If a barrel is used a few holes should be bored in the side to admit air.

In protecting spring flowering bulbs, or tender Japanese lilies where planted, a much heavier covering of manure can be used. In the case of the lilies they should be covered

with at least ten or twelve inches of protective material, whether it be leaves, straw or long strawy manure. These beautiful mid-summer flowering lilies can be successfully grown and flowered year after year in light well drained soils, if heavily protected during winter.

A covering of three or four inches of the materials mentioned will be ample for hyacinths or any of the spring flowering bulbs. Tulips, crocus, snowdrops and most of the narcissi really require no protection so far as hardiness is concerned, but I have found that these even come through the winter better with a light protection, more especially if the bulbs were planted late in the autumn, or perhaps during early winter.

CHRYSANTHEMUMS.—Plants of these, when the flowers have become shabby, should be cut down to within an inch or two of the soil, and the pot stood in a cool window and not given too much water for a time, the soil should never become dust dry, but should be kept only fairly moist. When water is given the plant, sufficient should be given to moisten all the soil, and no more given again until the soil shows signs of dryness. Old plants of these popular autumn flowers can be kept over if treated as I have described. They can be planted in the open ground usually about the end of April or early in May and grown on for next season's flowering. The tops of the growth should be kept pinched off as soon as the growth attains the length of four or five inches. This operation will require attention from April until July if good, bushy plants are wanted. Or cuttings of the young growth about four inches in length can be stuck in sand in March, and the cuttings potted into good soil as soon as rooted. The young plants should be kept pinched back until July as recommended for the old plants. Chrysanthi can be grown during the summer in large pots or planted out in the open ground and taken up

and potted before frost in the autumn. The pinching process as mentioned is necessary in all cases, if good plants and plenty of bloom is expected.

Amongst the new varieties sent out in the spring of 1903 that have been tested at the College, a deep rich yellow flowered variety, H. W. Buckbee, promises to be the best and most suitable variety for pot culture, being of a fairly dwarf and very robust habit, very similar in that respect to the old favorite, W. H. Lincoln, the color of its flowers being very similar, but even a more intense yellow, whilst the form of the flower is a decided improvement on the W. H. Lincoln variety. Other new varieties that deserve special mention are Globosa Alba, a pure white incurve; W. R. Church, having an immense bronzy crimson and old gold flower; Madame Marie Liger and Mdme. L. Chevrant, both having silver pink and white flowers, are both very pretty varieties, whilst the tall growing variety, F. L. Taggart, with its large beautifully semi-incurred lemon yellow flowers is a decided acquisition to the hairy type of chrysanthemums, being much more representative of its class than any of its predecessors that are such favorites, such as Louis Gochemer, Beauty of Truro, *Enfant des deux Mondes*, etc. It would be difficult to say which was the most admired by the crowds who have visited the O. A. C. to see the 'mums during the last week or two, whether the last mentioned variety or the variety, H. W. Buckbee. The latter is, however, certainly the most suitable for a

pot plant. Miss Minnie Baily, a dwarf growing variety, having a bright pine rosette-like flower, also deserves special mention, as it is a decided improvement both in habit of growth, color and form of flower than the two varieties it was derived from, viz., *Lavender Queen* and *Mrs. L. Perrin*, both popular and well known varieties. The variety Miss Elma O'Farrell, introduced in 1902, is a grand flower, its extremely robust habit and its immense, rather flat shaped, but bright rosy magenta colored blooms, makes it a decidedly conspicuous and pleasing relief to the almost innumerable varieties and shades of color we have amongst the yellow, pink, dark and white varieties. No amateurs' collection of mums at least should be without this decided innovation in form and color amongst chrysanthemums. I may possibly be able to give in the next issue of the *Journal* a cut of one or two of these newer varieties of chrysanthemums that will show at least the form, if not the colors and shades of the new varieties mentioned.

GIVING AIR TO WINDOW PLANTS.—Fresh air is beneficial to window plants, but cold draughts should be strictly avoided. Open the top sash of the window, or open a window in an adjoining room when the room where the plants are requires ventilating, or remove the plants from the window if the bottom sash must be opened. There are very few days during the winter months that it is desirable to give direct ventilation on even the hardiest kinds of window plants.

THE NARCISSUS ABOUT THE FRUIT GARDEN

BRIGHT yellow jonquils and daffodils do better than well in corners and along the sides of the square or parallelogram that defines the orchard. Jonquils and daffodils are early, flowering in March. The bulbs are only 50 cents per dozen, and

once planted will multiply and bloom ever after; frequently marking the sight of long abandoned places. Outdoor planting is decidedly the best, in the south, for these hearty bulbs. Plant them not less than ten inches deep; locate them in the sunshine.

FLORAL NOTES

BULBS FOR THE WINDOW.

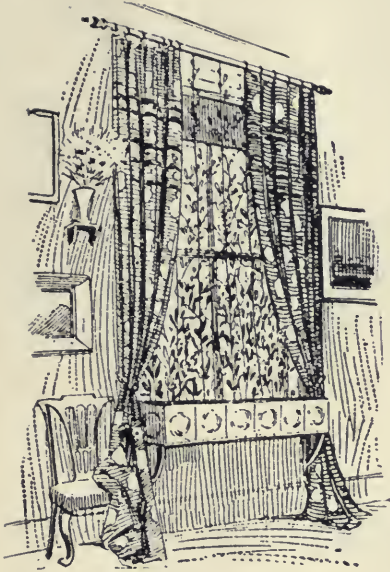


FIG. 2704. A WINDOW GARDEN.

VERY few homes in Ontario indulge in the luxury of a private greenhouse; it is therefore upon the window garden that most of our lady amateurs must depend for the practise of floriculture in winter. Many ladies, ambitious to excel, and fond of their floral treasures, attempt to grow too many varieties and find that they do not agree over temperature, or moisture, or sunlight, and in consequence that many of them look sickly and fail to bloom. Far better make a study of a few plants at a time, learn to know the conditions of their success, and then add by degrees to the collection.

Winter flowering bulbs are a very interesting class of window flowers for the beginner, and now is the time to make one's purchases.

"Last winter," says a writer in *Country Life in America*, "I learned for the first time how easily and cheaply one may have

flowers in the home throughout the winter months if the bulbs are secured in the early fall and planted at intervals.

"We purchased only five bulbs of choice varieties, and the cost did not exceed the expense of a blooming plant or two at Christmas or Easter time. Moreover, half the pleasure derived from plants and flowers comes from watching their wonderful growth and development.

"We procured a number of four, five and six-inch pots, some fine, clean sand, and a quantity of well-rotted manure. The kind of manure suitable is practically odorless and easy to handle, and should be chopped or crumbled fine. We next mix the sand, manure and dry garden soil, using equal parts of each, and after the bottom of the pots had been covered with pieces of coal or crockery for drainage, the bulbs were planted at a depth below the top varying from one-fourth of an inch to an inch, depending on the size. After the bulbs had been watered thoroughly they were placed in a dark, cool corner of the cellar, where they remained until the tops were well above the soil. When in the cellar we did not water them oftener than once in ten days, but when the pots were transferred to the sitting-room they were given moisture each day. In from three to twelve weeks the pots were full of roots, and as the tops appeared above the soil one could not help but wonder how they had managed to keep their faces so clean and white."

Among the bulbs which are easily grown, and which give much satisfaction, we may mention the *Narcissus*, which may now be had in a great number of interesting varieties.

After an experience with a dozen varie-

ties, says the writer above quoted, we unite in awarding the blue ribbon to the Paper White narcissus. We started in by purchasing a dozen Paper Whites, but before the winter was over we had planted nearly two hundred of them, and there was hardly a day from October first until the crocus blossoms outdoors had hailed the advent of spring when we did not have a pot of these flowers in bloom. The last were not even planted until the middle of February, but the flowers were nearly as fine as those grown months before. The Paper Whites possess nearly every quality that makes a bulb desirable, as they are cheap, grow rapidly, are sure bloomers, the foliage remains green and attractive long after the blossoms are

gone, and the fragrance, grace and beauty of the flowers themselves are unexcelled. We consider them superior even to the favorite Chinese lily, is the flowers last longer and the fragrance is much more delicate. We discovered a novel and very successful method of growing the Paper Whites, a half-dozen or more bulbs being placed on a two-inch layer of sand in a jardiniere or deep lily bowl, and covered nearly to the tops with sand and gravel, with stones of sufficient size to hold them firmly in place. They were kept in a dark corner of the room for two or three weeks, and in about six weeks the flower-buds, each containing a dozen flowers, were ready to burst.

THE WITCH HAZEL

(HAMAMELIS VIRGINICA)

THIS peculiar shrub, or small tree, is of the Hamamelaceæ family. It differs from hazel-nut, filbert, or cob-nut, which are all of the Corylaceæ.

The witch hazel is common in damp woods all over the United States and its peculiarity of producing flowers in the autumn is the same irrespective of climates. From the shores of Lake Michigan, south, the bushy, many angled little tree will clothe itself in light yellow flowers after the leaves have fallen from all the trees of the forest surrounding it; and although Gray and Wood are good authorities, in their botanies, that "the witch hazel blooms from November to January," observation has shown the writer that the blooms begin to open in September before the leaves are cast. In October the leaves fall and still more flowers appear, and in November every leaf will have been stripped from the tree and the full flush of blooms will clothe

the branches from end to end. The flowers are perfect, or merely polygamous and in clusters on the curiously and sharply angled branches, and the stamens and petals show plainly how they are inserted in the calyx. Now, after November the stamens appear deadened, but the petals retain their golden hue, which is the reason our botanists have for saying it blooms till January.

By a right combination of circumstances the witch hazel in yellow blooms will be covered with snow and the holly ice, when side by side with it is bright with berries. Until after January the flowers cling to the leafless branches, and then another curious phenomenon appears. At this stage the fruit, or seed, is edible, and hangs on the branches until spring. The little fruit consists of an oblong, woody case, about half an inch in length, inclosing two hard nutlets somewhat resembling the seeds of an apple. These seeds are expelled with a

snapping sound, and any one curious to witness the phenomenon may stand near the witch hazel on a warm, dry, sunny day, and see it sow its seeds. The case splits nearly to the base, and after the seeds have been sent bounding, the appearance of the seed cases is like the wide open mouth of a serpent. It is an interesting experiment to cut the branches with the embryo fruit and keep them in a worm room until the expulsion sends the seeds bouncing around the room. Arboretums may well be adorned with these interesting trees native to our forests. Parks are interesting when adorned with shrubs and trees of marked and unusual features, and such is the char-

acteristic of the witch hazel. The foliage is obovate or oval, wavy, toothed, and straight veined, slightly downy and alternate, not unlike the filbert or hazel nut.

Among the belated flowers, aster and golden rod, it is charming to the senses to come suddenly upon the wildling witch hazel in bloom. The sweet perfume invariably makes the proximity of the tree known, and it is curious to note the manner in which the light yellow blossoms cling to the tree. They are almost without stems, and are set in neat little nests up and down and all around every limb, seeming to nestle against the branch after the leaves have fallen.—*Park and Cemetery.*

SWEET PEA CULTURE.

I HAVE been asked to give my rules for growing sweet peas for the finest flowers, and, the longest season of bloom. One—Always sow the seed early. Peas are the first seeds I put in the ground, and this just as soon as the soil can be worked. The advantage in this is that the plants need the strength that comes from early spring growth in order to carry them thriftily through hot weather. Two—Prepare the soil deeply and include some bone in the manure. Wood ashes also are excellent, as they keep the soil damp. Three—Sow in trenches something like old-fashioned celery trenches, about four or five inches deep. The

seed should be covered with two inches of soil at the first, and then fill in almost but not quite enough soil in the trench later as growth proceeds, to bring the top even. The slight depression is useful for summer watering in case of drouth. Four—In the summer mulch the line of peas, and apply water liberally at times if the weather is dry. Lastly—Pick all flowers before they drop, in order to prevent seed bearing, which is fatal to continuous bloom. Follow this course and any one can grow sweet pea to perfection, which means to have plenty of flowers the season through.—*Vick's Magazine.*

Civic Improvement

A DEPARTMENT DEVOTED TO THE INTERESTS OF THE HORTICULTURAL SOCIETIES OF ONTARIO, AND OF ALL OTHER BODIES INTERESTED IN THE IMPROVEMENT OF THE SURROUNDINGS OF OUR CANADIAN TOWN AND COUNTRY HOMES.

CIVIC IMPROVEMENT NOTES.

BY THE EDITOR.

A CANADIAN FLAG AS A PRIZE TO SCHOOLS.

THE plan of enlisting the children in the improvement of their grounds is truly a most worthy one. Mr. G. R. Patullo, of Woodstock, our field secretary, originated a plan of giving a Canadian flag in each district to the public school making the greatest improvement in the grounds and surroundings of the school buildings during the summer of 1903.

A VISTA WHICH IS WORTH MORE THAN FLOWERS AND CARPET BEDDING.

THERE are few people who do not appreciate a fine landscape, or a pretty view half hidden by tasteful plantings of shrubbery and trees, and yet not one in twenty is able to analyse the picture into its component parts, or, given the ground work, to so dispose the plantings of trees, shrubs and climbers as to create a picture. To do this one must not only be an observant student of nature, but must also have an artistic genius.

About Hamilton, with the bay on the north and the water inlets on the west and the mountain on the south there is material

that could be worked into most delightful park scenery by a landscape gardener, with comparatively little expenditure.

There is a fad with some gardeners for ribbon bedding, and there are places where perhaps a ribbon bed may be the most appropriate thing, as in a small city lot which is too small to be treated for landscape effect; but in large pleasure grounds, or in a public park, such work is entirely out of place.

PARK MAKING IN CANADA.

FREDERICK G. TODD, of Montreal, Quebec, has been selected to prepare plans and assist in drawing up reports for the future improvement of Ottawa as the Canadian capital. The commission recently appointed by the Dominion government to prepare a report on this work intends to acquire large areas of land for park purposes both inside and outside of the present city limits, and to lay out a connecting system of boulevards. The magnificent situation of the Parliament buildings, and the fact that the government owns a large part of the rugged and picturesque shores of the Rideau river, which runs through the

city, makes possible a beautiful scheme. Mr. Todd has recently made plans and submitted a report for the improvement of the grounds of Trinity College, Toronto, which embodies some interesting landscape problems.

IMPROVEMENT OF SCHOOL GROUNDS.

THE Youth's Companion will present to the 500 schools of the State of Illinois doing the best work in school improvement, a set of six historical pictures, and to the ten of those doing the best work, a large American flag.

SHRUBBERY ABOUT THE HOUSE.

TO one who has been accustomed to plenty of shrubbery about the house, it is surprising how noticeable is the want of it in the majority of lawns, and what a bare and forsaken look such places seem to present. Shrubs have a double value, one in their intrinsic beauty, another in their use. If the former be the special consideration, then they should be chosen with great care as to foliage, color, bloom and such characteristics; but if the latter, their individuality is of little importance so long as they accomplish the desired objects. One of these is the hiding of fence boundaries, of well curbs, of outhouses, of gravel roadways, or anything which breaks up the continuity of the lawn view. For

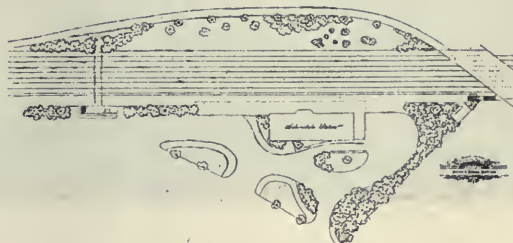


FIG. 2705. SHRUBBERY TO HIDE FOUNDATION

such plantings it is not necessary to buy expensive plants from the nursery, for any wild bush will furnish a variety collection sufficient for liberal planting. Too often the home maker leaves his house fully exposed from the foundation up, quite unconscious of the nakedness which the house presents unless the foundations are at least partly clothed with clumps of shrubs. This is fairly shown in the accompanying engraving, where even a single shrub has done wonders in breaking up the angularity of the mason work.

STATION GROUNDS.

ATTENTION has often been called, in these pages, to the possibilities of



Plan of Station Grounds, Auburndale, Mass.—Boston & Albany R. R.—Considered ideal in arrangement and display.

FIG. 2706. PLAN FOR STATION GROUNDS.

making these attractive, as has been shown in so many instances along the line of the Boston and Albany Railway. On most roads these places are so barren that waiting is a weary season; but it would be possible, by a little treatment, to make these station grounds so attractive that the waiting season would be delightful; and not only so, but they would afford a valuable object lesson on the treatment of a lawn, which could in many instances be copied in part at the homes of the travelers.

As an example of what may be done in this direction, we give the plan of the station grounds at Auburndale, Mass.



FIG. 2707. VIEW FROM HAMILTON'S PROPOSED MOUNTAIN DRIVE.

WORK OF THE CIVIC IMPROVEMENT SOCIETY, OF HAMILTON.

CITIZENS who during the past few months have been paying special attention to the care of their lawns, window boxes, rockeries, etc., received their rewards last night in the City Council chamber. It was the annual distribution of the City Improvement Society's prizes, and the room was scarcely large enough to accommodate the crowd of interested competitors and spectators. The floral decorations which were arranged by the ladies of the society were beautiful, and reflected much credit on the artistic taste of the ladies. This year the society handed out over \$300 in cash prizes, besides the five handsome gold

medals donated by Mrs. W. E. Sanford for the best kept lawns.

R. T. Steele, president of the society, occupied the chair, and seated on the dais with him were Judge Snider, Rev. Canon Forneret, N. D. Galbreath (secretary), and A. Alexander.

In his opening address President Steele said that the presence of so many citizens satisfied him that the citizens generally were interested in the work of the society. The movement started by the Hamilton society was spreading. Even Ottawa has taken up the work of city beautification, and purposed spending much money on it. The

matter of city improvements was no longer considered a fad. It was a necessity. In that respect Hamilton was ahead of any other city on the continent. After hearing the remarks of visitors to the summer carnival he was satisfied on that point. The work of the City Improvement Society was doing much to advertise the city. Continuing, Mr. Steele referred to the fine condition of the grounds surrounding T. Upton & Co.'s factory. He hoped many other manufacturers would follow Mr. Upton's example in future years. The school surroundings and church surroundings had been improved during the last year, but in the latter case there was still room for improvement. Getting down to the civic matters, Mr. Steele said that the board of health was not given a fair chance by the aldermen. It was never given sufficient money to do its work properly. He criticised the aldermen for cutting down the board's grant this year so that the system of semi-weekly collection of garbage during the summer months had to be abolished. He was glad that the trees had been handed over to the care of the parks board. They were one of the city's most valuable assets and would now be properly cared for. Regarding the work of the police, he had no complaint to make about the officers, yet they did not give the society and board of health the support they should. The cause thereof was that there were loopholes in several of the by-laws. These should be plugged up. The society expected to get the Beckett drive fixed up and opened to the public very shortly. In conclusion, Mr. Steele said that he hoped that it would not be long before the city would have a by-law making it an offence to spit on the sidewalks. He then read a letter from Chairman Stewart, of the board of works, expressing regret at his inability to be present.

Secretary Galbreath was the next speaker. He explained the nature of the work

which the society undertook this year and gave credit to President Steele, Mrs. Sanford and F. B. Greening for assisting the society financially and otherwise, in making the competitions a success.

The presentation of prizes then began, Rev. Father Holden, superintendent of the separate schools, and James Chisholm, chairman of the Board of Education, presenting the prizes for attractive window boxes.

Father Holden said he was pleased with the work being accomplished by the society. He was particularly interested in the work among the school children. That he considered was a most important branch of the work, for the children of to-day would be men and women of a few years hence. As a result of the efforts of the children the grounds surrounding the separate schools had been made more beautiful this year than ever before.

Mr. Chisholm said it was a privilege for him to be present to represent the Board of Education. The board did not claim any credit for the success of the society's scheme. The board, previous to this year, had been dilatory, and was thankful to the society for calling its attention to the fact that the grounds surrounding the schools required some care. The society was doing a great work for the city, and personally, he wished it every success. It had made Hamilton one of the most beautiful cities in the world.

The presentation of prizes donated by President Steele for corner rockeries came next, the presentation being made by Mrs. Steele, assisted by F. B. Greening.

Mr. Greening made a few remarks. He said the corner rockery competition was, in his opinion, among the most important of the society's competitions. The rockeries were useful, as well as ornamental, for they prevented careless people from cutting across the corners and thus destroying lawns. He hoped more corner rockeries would be built next year.

Mrs. F. B. Greening, assisted by A. Alexander, presented the prizes for rockeries.

Mr. Alexander agreed with the previous speakers that as a result of the society's work the city was each year becoming more beautiful. He was proud to be a member of such a society. He urged all citizens to assist the society by becoming members.

It fell to the lot of John H. Tilden, chairman of the parks board, to announce the result of the ward foremen's competition. He thought all the foremen were entitled to great credit for the cleanliness of Hamilton's streets. As a result of their efforts Hamilton was known all over the country as the cleanest city on the continent. It was impossible for the judges to say which was the best kept ward, and for that reason it was decided to give the prize, \$25 in cash, to them to divide as they saw fit.

Thomas Towers, president of the Ward Foremen's Association, accepted the prize from Mr. Tilden's hands, and thanked him for the kind words he had said about the foremen. There was no doubt that the society was doing good work. The foremen were no longer troubled by people throwing waste paper, grass, etc., on the streets.

The gold medals, donated by Mrs. Sanford, as first prizes in the lawn competition, were presented by J. J. Greene, in the absence from the city of Mrs. Sanford. In doing so, Mr. Greene said he was sorry the donor was not present to present the medals herself. He was sure that it was a pleasure to Mrs. Sanford to assist in furthering the aims and objects of the City Improvement Society, and that she would like to have been present to congratulate the successful competitors. The citizens were indebted to President Steele and his society for making Hamilton such an attractive city. They were making it to the advantage of manufacturers to locate here and were doing much to make Hamilton an ideal city and advertise it as such. He hoped that before

long the parks board would take hold of the mountain brow, especially the eastern slope, and make it a pleasure park for the citizens. He hoped the day was near at hand when the destruction of the brow of the mountain by quarrying operations would be stopped.

Judge Snider presented the second, third and fourth prizes in the lawn competition. He, too, made a few appropriate remarks. As a police commissioner, he thought the police officers were doing their best to assist the society in its good work. He spoke words of congratulation to the winners of prizes and words of encouragement to those who entered the competition but were not fortunate enough to win prizes.

Adam Brown moved a vote of thanks to the ladies who so tastefully decorated the Council chamber. In doing so he said he was pleased to receive his prize from the hands of Mrs. Greening, a woman whose husband's father had done more than any other man in the British empire to cultivate a love for flowers. Among the humbler classes in England his name was called blessed. In conclusion, he referred to the excellent support the society has received from the ladies.

George C. Copley moved a vote of thanks to the press and the reporters, and presented to each reporter a suitable souvenir of the annual distribution of prizes. Cal. Davis responded on behalf of the scribes.

Rev. Dr. Lyle moved a vote of thanks to the judges, whose work, he said, had been faithfully and well done, and Rev. Canon Forneret moved that the thanks of the society be returned to the corporation for the use of the Council chamber.

All the motions were heartily carried.

A feature of the evening's proceedings was the presentation of a handsome clock to Newton D. Galbreath by W. A. Robinson. After referring at length to the great improvement in the city during the past few years, Mr. Robinson went on to speak of the

important part Mr. Galbreath, in his official capacity as honorary secretary of the City Improvement Society, had played in the city's Improvement. He reviewed the history of the society from its inception, and gave Mr. Galbreath a lion's share of the credit for its birth and its successful career.

Mr. Galbreath made an appropriate reply.

The last item on the somewhat lengthy program was the presentation to St. Vincent's school of the handsome flag won in the separate school competition. The pre-

sentation was made by Mayor Morden, who wound the flag about the neck of Rev. Father Holden, superintendent of the separate schools. As he did so James Johnson began to sing *The Maple Leaf*, and the audience rose and joined in singing the chorus.

A large number of plants, as well as cut flowers, used in decorating the room was loaned by Webster Bros. The collection included some *Eulalia* grass, which attracted much attention.



FIG. 2708. THE INCLINE RAILWAY TO THE MOUNTAIN DRIVE.

EAT APPLES AT NIGHT.

“EVERYBODY ought to know,” says the Family Doctor, “that the very best thing they can do is to eat apples just before retiring for the night. The apple is an excellent brain food, because it has more

phosphoric acid in easily digested shape than any other fruit. It excites the action of the liver, promotes sound and healthful sleep, thoroughly disinfects the mouth, and prevents indigestion and throat diseases.”



The Canadian Horticulturist

COPY for journal should reach the editor as early in the month as possible, never later than the 12th. It should be addressed to L. Woolverton, Grimsby, Ontario.

SUBSCRIPTION PRICE, \$1.00 per year, entitling the subscriber to membership of the Fruit Growers' Association of Ontario and all its privileges, including a copy of its valuable Annual Report, and a share in its annual distribution of plants and trees.

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ADVERTISING RATES quoted on application. Circulation, 5,500 copies per month. Copy received up to 20th.

LOCAL NEWS.—Correspondents will greatly oblige by sending to the Editor early intelligence of local events or doings of Horticultural Societies likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of Horticulturists.

ILLUSTRATIONS.—The Editor will thankfully receive and select photographs or drawings, suitable for reproduction in these pages, of gardens, or of remarkable plants, flowers, trees, etc.; but he cannot be responsible for loss or injury.

NEWSPAPERS.—Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.

DISCONTINUANCES.—Remember that the publisher must be notified by letter or post-card when a subscriber wishes his paper stopped. All arrearages must be paid. Returning your paper will not enable us to discontinue it, as we cannot find your name on our books unless your Post-Office address is given. Societies should send in their revised lists in January, if possible, otherwise we take it for granted that all will continue members.

ADDRESS money letters, subscriptions and business letters of every kind to the Secretary of the Ontario Fruit Growers Association, Department of Agriculture, Toronto.

POST OFFICE ORDERS, cheques, postal notes, etc., should be made payable to G. C. Creelman, Toronto.

SHIPMENT OF FRUIT

DISCUSSED BY THE CONVENTION AT LEAMINGTON. THE ADVANTAGES OF CO-OPERATION AMONG GROWERS

—BEST VARIETIES FOR NORTHERN ONTARIO—REMISSION OF DUTIES ASKED FOR.

LEAMINGTON, Nov. 25.—At this morning's session of the Fruit Growers' Association Mr. E. C. Caston, of Craighurst, presented the report of the Transportation Committee. They were particularly concerned in the matter of freight rates to the Northwest, which would soon be the greatest fruit market for our products. The fruit growers had had some influence in having an act put through to establish a railway commission. When it should be appointed they would have to consider the matter of having their interests properly represented before the commission. Mr. W. H. Bunting opened the dis-

cussion. The arrangements made by co-operation in some places had reduced the burden of express charges. But still, in reference to the service rendered, the express charges were out of all proportion.

Mr. L. G. Rice, of Michigan, asked whether any consideration had been given to the opportunity of shipping by steamer from Sarnia and neighboring ports to Port Arthur and Duluth. The vessels came from Lake Superior points with freight, and were glad to get freights back at almost ballast rates.

Mr. G. C. Gaston pointed out the double handling that was necessary for a joint lake

and rail shipment, which constituted a great difficulty.

FRUIT MEN'S NEEDS.

Mr. A. McNeill, of Ottawa, outlined the fruit men's needs. They wanted a change in classification of several kinds of fruit. Apples should be in class 8 instead of class 5. They wanted different arrangements about mixed cars. They wanted better local rates and lower rates on cull apples. One of their greatest wants was better accommodation at stations, and for tracing cars en route.

Mr. W. L. Smith, editor of *The Farmer's Sun*, dwelt upon the necessity for co-operation among all the farmers so as to present their claims upon transportation companies before the railway commission. Mr. H. W. Dawson, of Dawson Bros., Toronto, said that there was no class of freight paying higher and more disproportionate charges than fruit.

Mr. E. D. Smith, M. P., of Winona, said that the railway commission should have two men representing the producers of Canada and one should be a practical farmer. If two members should represent the railways, the producers would be in no better position than before.

The following committee was appointed to attend to the question of transportation: Messrs. W. H. Bunting, St. Catharines; R. J. Graham, Belleville; H. W. Dawson, Toronto; D. D. Wilson, Seaforth; W. L. Smith, Toronto; D. J. MacKinnon, Grimsby, and J. M. Shuttleworth, Brantford.

OCEAN RATES.

Mr. L. Woolverton, Grimsby, introduced the question of ocean rates. He had shipped Bartlett pears last summer, and much of the fruit had been seriously injured by the temperature in the fruit compartments on the vessels being too high. If a certainty of temperature could be obtained on

the ocean vessels a good trade could be done in England.

Mr. W. W. Moore, of Ottawa, chief of the market division of the Department of Agriculture, explained that the difficulty complained of by Mr. Woolverton was that the steamers' cold storage compartments were too closely packed, and the chamber could not be properly cooled in the centre. In another case, on the steamer *Cicilian*, the fruits sent by Mr. Woolverton and Mr. E. D. Smith were over-ripe before leaving Montreal. A quantity of California fruit sent in the same chambers turned out splendidly at Glasgow.

Mr. E. D. Smith, replying, said that some of the blame was due to the railway for delay in delivering at Montreal.

In keeping with the suggestion for the appointment of a committee on organization, with reference to co-operative work, the following were appointed: Messrs. G. W. Cody, Leamington; Robert Thompson, St. Catharines; A. W. Peart, Burlington; A. E. Sherrington, Walkerton, and Wm. Rickard, M. P. P.

A resolution was passed urging the Government to remit the duties on raw sugar for canning, and on fruit packages, and asking for legislation to compel canners to label canned preserves to show the actual contents, and that such goods be labelled "Made in Canada."

Mr. A. C. McNeill read a brief address upon fruit packages. Uniformity of packages was a great essential. He recommended the use of a standard apple box 10 by 11 by 20 inches. The matter was referred to a committee.

BENEFIT OF CO-OPERATION.

In the afternoon Mr. W. H. Owen, of Catawba Island, Ohio, spoke of co-operative fruit packing and marketing. He dwelt most strongly upon the value of a central packing house system, where the fruit is collected and graded, and the commission

merchants and buyers come to buy. Mr. A. E. Sherrington, of Walkerton, explained how the co-operative system had worked in Bruce county, where it is being given a trial. In the handling of aples it had been a great benefit to the fruit growers. Many other members discussed the matter, all being convinced of the value of such a plan.

Prof. L. R. Taft, of the Agricultural College, Michigan, gave an address upon peach-growing in Michigan. The people of Michigan had found the most profitable peach for their orchards and markets to be the Alberta. The FitzGerald and others which had good records in Canada had not done well in Michigan.

THE GOVERNMENT EXPERT.

Prof. W. T. Macoun, horticulturist at the Ottawa Experimental Farm, spoke upon hardy fruits for northern districts. From the present northern limits of commercial fruit growing there was a district of some 500 miles to James Bay. There was no probable reason why apples should not be grown as far north as James Bay. Sun scald, root killing, blight and mice were the principal causes of failure at present in northern localities. Prof. Macoun explained the methods by which these troubles could be overcome, as found by experiments at Ottawa.

Dr. Wm. Saunders, director of the Ottawa Experimental Farm, supplemented Prof. Macoun's paper with an account of the work done by the experimental farm in the way of testing fruit trees for use in the northern parts of Canada and in the northwest.

Mr. W. A. MacKinnon, chief of the fruit division of the Agricultural Department, Ottawa, spoke upon power spraying. In a district near Woodstock under unfavorable conditions the cost of power spraying was four cents per tree per application, and the result was that there was great difficulty in

finding scabs on sprayed trees. On unsprayed trees there was difficulty in finding any fruit trees free from scabs.

Mr. W. H. Owen said that the co-operative farmers of Catawba Island, Ohio, had gone in for power spraying, and had had much success.

A vote of thanks was tendered to the American fruit growers present.

OFFICERS ELECTED.

The nominating committee reported the officers for the coming year. Their report recommended the re-election of all of the officers and directors. The principal officers therefore are: President, W. H. Bunting, St. Catharines; vice-president, A. McNeill, Walkerville. Mr. W. W. Cox, of Collingwood, was replaced on the board of directors by A. E. Sherrington, of Walkerton.

A committee was appointed, consisting of Messrs. W. H. Bunting, A. McNeill and Murray Pettit, to act with kindred societies in matters of mutual interest.

JANUARY NUMBER.

In the January number of this journal much prominence will be given to topics discussed at the annual meeting, and altogether we hope to make it especially attractive to all our readers.

AN ITEM having appeared in a Toronto paper about a squash weighing 104 pounds, the Goderich Star rises to remark something about what can be grown in Huron county. It says: "Without going so far back as Mr. Wm. Warnock's champion squash at the Chicago World's Fair, weighing over 400 pounds, last year he grew one weighing 322 pounds, and John S. Howrie one weighing 308 pounds, and this year Mr. Howrie gained a Rennie prize with one of 285 pounds. When it comes to growing squashes Goderich can beat the world."

Open Letters.



FIG. 2709 HILL'S SEEDLING PEACH.

HILL'S SEEDLING PEACH.

SIR,—I send herewith a sample of peach grown in my garden at Orangeville, in the County of Dufferin, during the present season. I also send a photograph of a group of peaches, part of the crop of a dozen or so taken from the same tree on the 8th instant. They appear to me to have merit, not only as to size and color, but as to flavor. The tree upon which they were grown is a chance seedling growing about twenty-five feet from the east side of my house, without having had any protection or special care. It is about six years old, twelve feet high and some three inches in diameter. This is the first year it has fruited—some bloom last year did not mature to fruit. I send you these particulars because of the fact that the results have been obtained at a point near the height of land in the central portion of Ontario—over twelve hundred feet above the lake level at Toronto. I would be pleased if you would express some opinion upon the matter. Doubtless in the Niagara section the variety might prove a useful late peach.

SIR,—I have been reading your "English Horticultural Notes" with much interest, and thought you would be interested in seeing a sample of a large apple, the "Nancy Jackson," which grew on one of my dwarf apple trees, purchased from Thos. Rivers & Sons, of Sawbridgeshire, England. I have planted my dwarfs 9 x 9, but in Bungards Nurseries, at Maidstone, in Kent, I saw them planted 6 x 6 feet; they had been planted for twenty years and looked beautifully healthy.

London.

S. P. COLLYER.

Our Book Table.

REPORT OF THE DIRECTOR OF EXPERIMENTAL FARMS FOR 1902. By Wm. Saunders, L.L.D., Ottawa; also

EVIDENCE OF DR. WM. SAUNDERS, before the Select Standing Committee on Agriculture and Colonization, 1903.

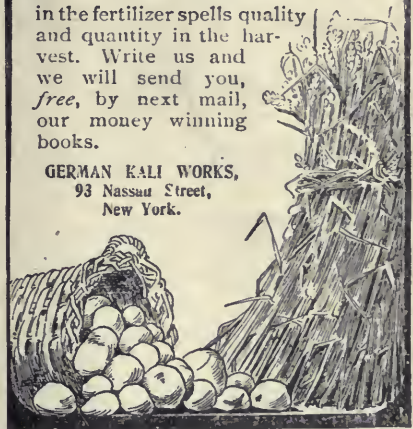
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Be good to your land and your crop will be good. Plenty of

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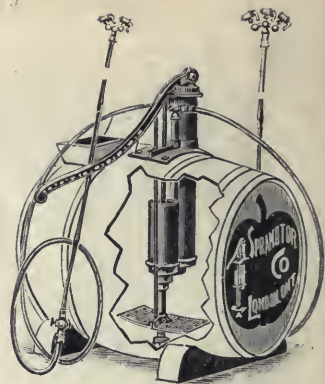
They are handsomely decorated with blue, green and gold. Or we will allow you 50 per cent. commission for selling our assorted remedies.

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The dinner set consists of 56 pieces, and is FULL size for family use; including soup plates, dinner, tea, and bread plates; cups and saucers, cover dishes, coffee pot, butter and milk pitcher,



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